Service Manual

Chassis Professional 8000

Service notes

After a repair the cables must be laid out as originally fitted to save compliance with original approval and to avoid failures or disturbances.
The mains cable prevents interference from the mains supply and is part of the product approval. For replacement the original spare part only must be used.

Note di servizio

Dopo una riparazione i cavi devono essere disposti come posizionati all'origine per mantenere la corrispondenza con le approvazioni originali ed evitare guasti o disturbi.
Il cavo di alimentazione previene interferenze provenienti dalla rete elettrica ed è parte delle approvazioni del prodotto. Per la sostituzione deve essere utilizzato esclusivamente il ricambio originale.

Modifications reserved - Con riserva di modifiche

Service procedure for Chassis Professional 8000

Power supply

Adjust PP1 for 140 V +/- 0.5 V across CP37.

Entering service mode

1. Turn on the appliance at the mains switch while holding down the **MENU** key on the **local control** until the red LED lights up.

2. Release the MENU key on the local control and press the **stand-by** key on the **remote control**. The appliance will start up in service mode with a specific support menu.

3. The various functions can be selected using the **P+** and **P-** keys on the remote control and the adjustment can be made using the **Volume ±** keys. It is advisable to make a note of the initial value before making the adjustment so that it can easily be restored if necessary.

If the memory NVM (ICR3) is replaced, it is essential to carry out all the adjustments required in service mode because the replacement memory is supplied NOT pre-programmed. If the EPROM (ICR2) containing the software is replaced, compatibility with the existing NVM is verified automatically and if necessary it is initialised. These operations may take some time, so you must wait until they are completed.

Although the individual settings can be accessed and memorised individually and independently, it is advisable to carry them out in the sequence in which they appear when pressing the P- key.

Option byte

The correct value to be set for each appliance is marked on the label on the back of each item alongside the writing **Option byte**. The value can be entered using the number keys on the remote control.

AFC setting

Connect a generator (or a known transmitter of reliable quality) to the antenna input and use the remote control number keys to enter the value of its RF frequency (which must be within the frequency band indicated by the menu), then press OK. The setting will be made automatically.

Repeat the procedure for BG, L and L' standards. If any of the settings are omitted, operation, automatic search and tuning in this standard may be incorrect.

AGC tuner setting

Connect a generator **with an RF level of 1 mV** (60 dBµV) (or a known transmitter of reliable quality) to the antenna input and use the remote control number keys to enter the value of its frequency (which must be within the frequency band indicated by the menu), then press OK. The setting will be made automatically.

Screen grid voltage (Vg2)

Adjust the potentiometer G2 on the transformer EHT until the confirmation message appears. No particular signal set-up is required.

Vertical geometry

The **VS** (Vertical Slope) function must be adjusted in such a way that the central horizontal line in the test signal is exactly on the border between the visible image and the lower black part. **It must not subsequently be altered.**

Now set the remaining parameters as accurately as possible in the sequence in which they appear.

Horizontal geometry

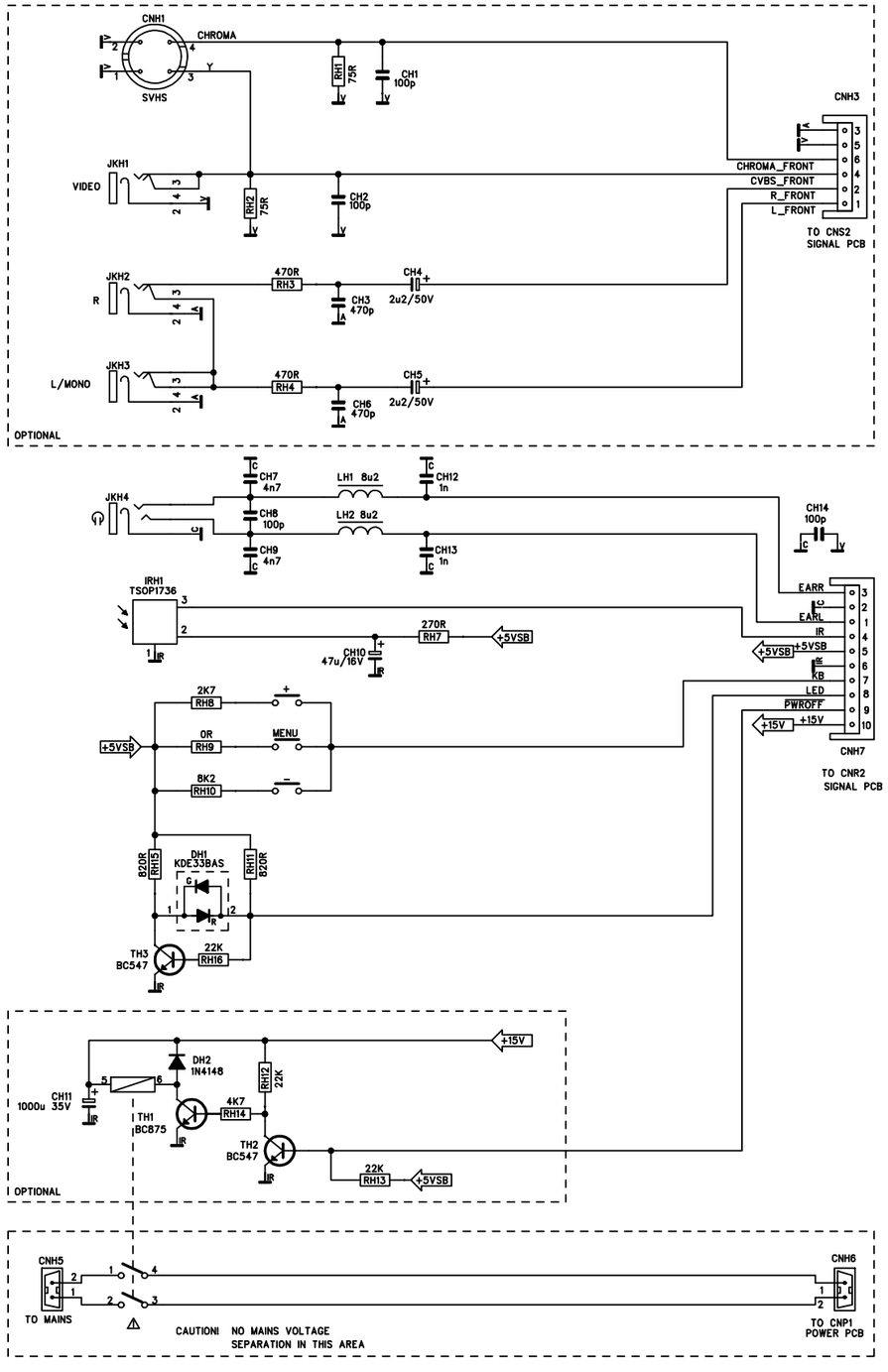
Adjust as accurately as possible in the sequence in which they appear.

Adjusting white (Red/Green)

Using a B/W bar signal, adjust to obtain a grey image. The blue setting is fixed.

Exiting service mode

Once you have made the necessary adjustments, press the **OK** key on the remote control in one of the menus in which it is active to memorise all the functions and return to normal operation of the appliance.



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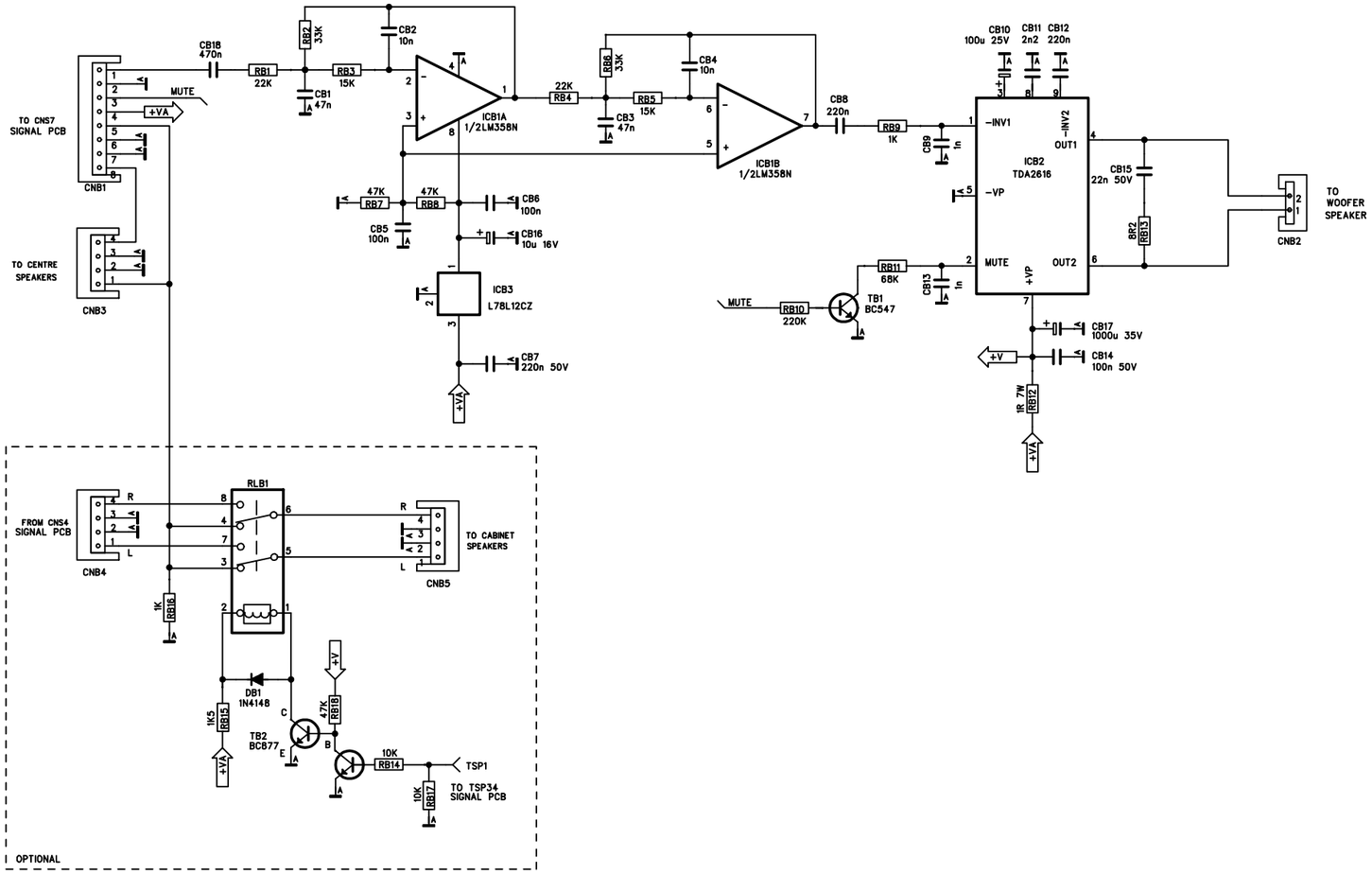
Chassis Professional 8000
Keyboard PCB Rev.1.1
Pg. 1/13


TO CNS7
SIGNAL PCB
CNB1
MUTE
+VA
CB18
470n
RB1
22K
RB2
33K
CB1
47n
RB3
15K
CB2
10n
ICB1A
1/2LM358N
22K
RB4
RB6
33K
CB3
47n
RB5
15K
CB4
10n
ICB1B
1/2LM358N
CB8
220n
RB9
1K
CB9
1n
CB10
100u 25V
CB11
2n2
CB12
220n
ICB2
TDA2616
-INV1
-INV2
OUT1
-VP
MUTE
+VP
OUT2
CB15
22n 50V
8R2
RB13
TO
WOOFER
SPEAKER
CNB2
RB11
68K
CB13
1n
MUTE
RB10
220K
TB1
BC547
CB17
1000u 35V
+V
CB14
100n 50V
1R 7W
RB12
+VA
47K
RB7
47K
RB8
CB5
100n
CB6
100n
CB16
10u 16V
ICB3
L78L12CZ
CB7
220n 50V
+VA
TO CENTRE
SPEAKERS
CNB3
OPTIONAL
FROM CNS4
SIGNAL PCB
CNB4
RLB1
R
L
TO CABINET
SPEAKERS
CNB5
1K
RB16
DB1
1N4148
1K5
RB15
+VA
TB2
BC677
47K
RB18
+V
10K
RB14
TSP1
10K
RB17
TO TSP34
SIGNAL PCB

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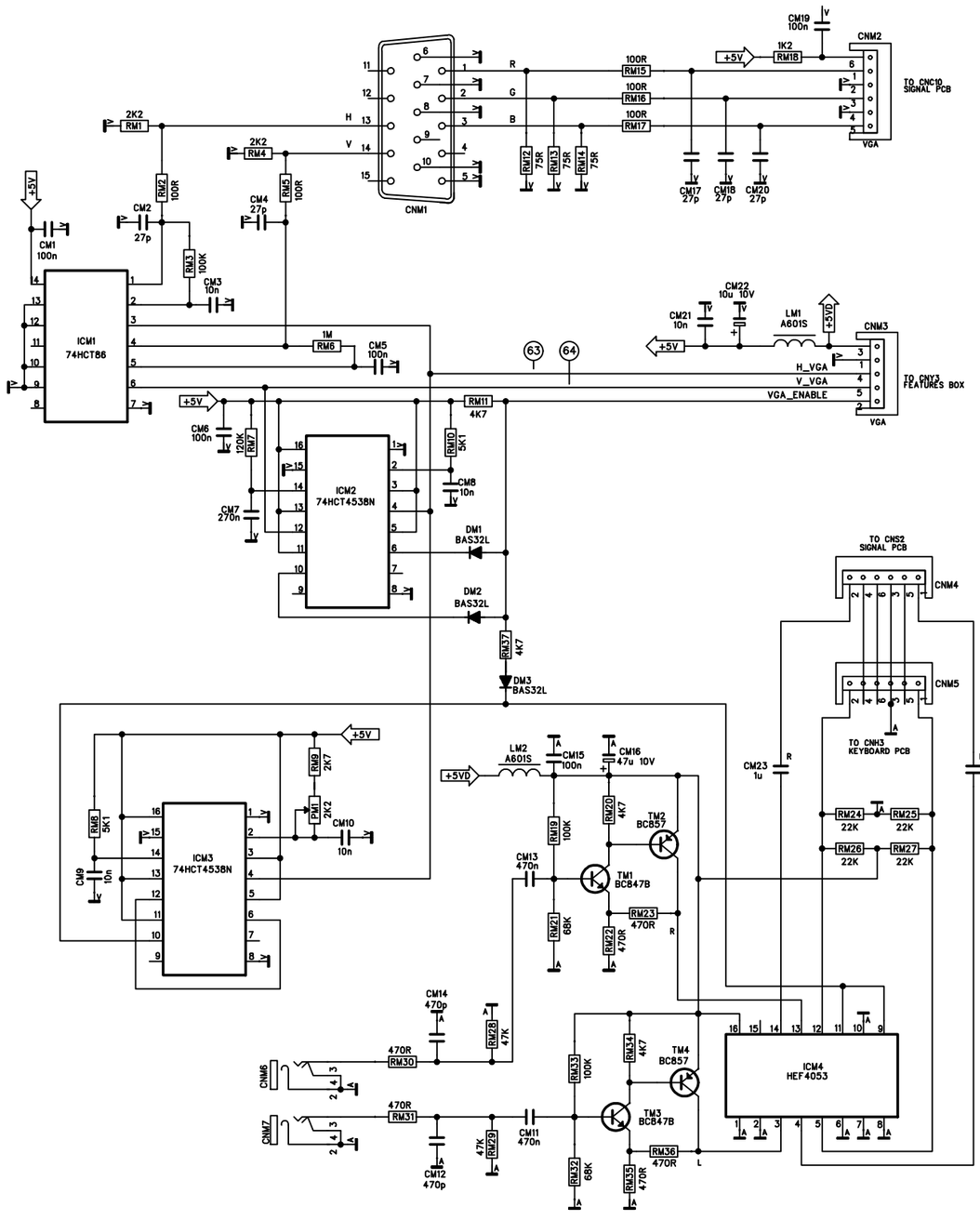
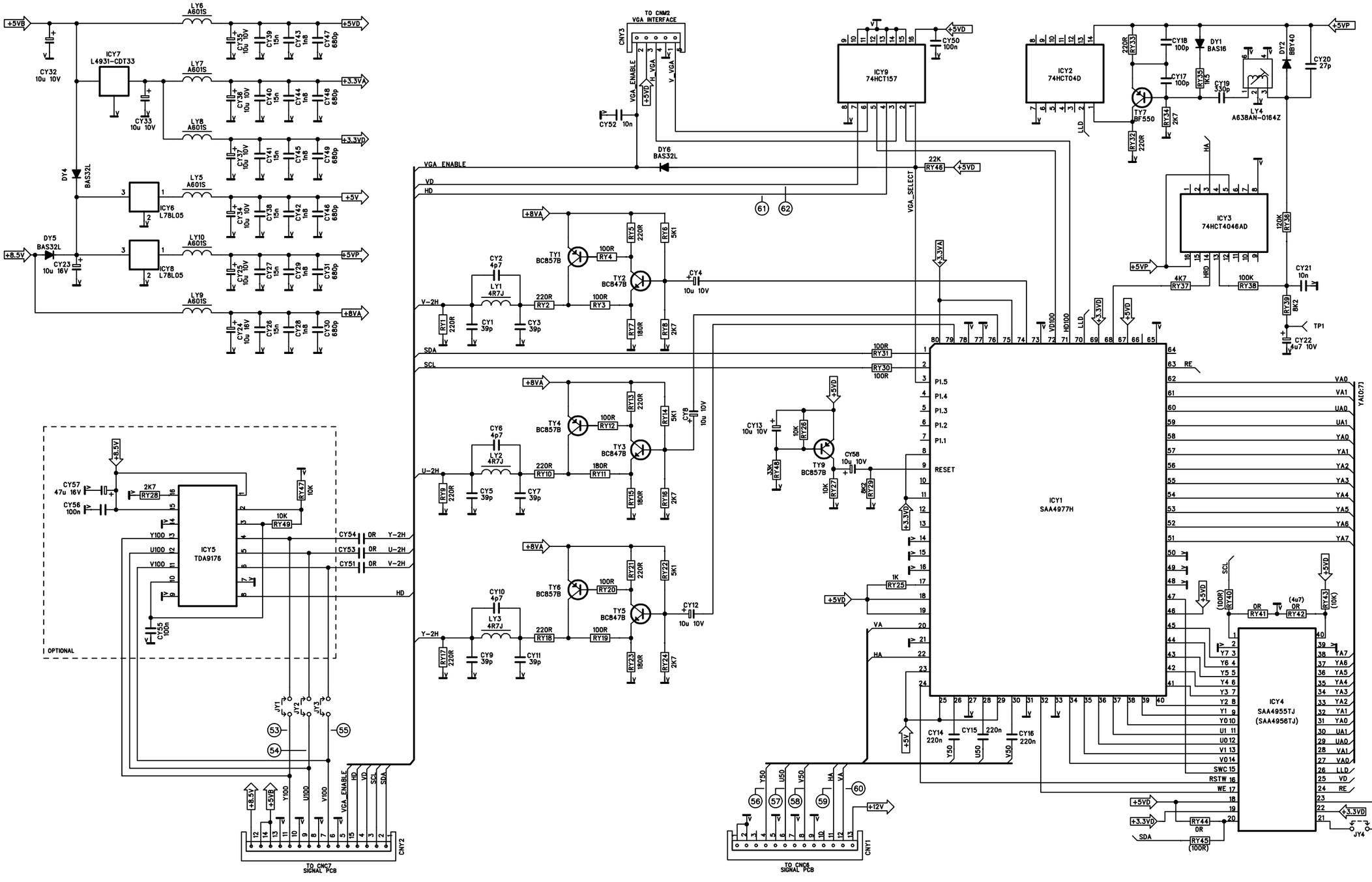


Chassis Professional 8000
Vga Interface Rev.1.3
Pg. 3/13

S095418000



Chassis Professional 8000
100 Hz Feature Box Rev.1.4
Pg. 4/13

S095418000

TO AUDIO POWER

ICR1
M30612SFP

ICR2
27C2001 or
27C4001 or 27C801

ICR3
ST24W16

ICR4
M5M44400BJ

ICR5
SDA5273-2P

ICR6
M51953

OPTIONAL

JR2 NOT FOR 27C801
JR3 27C2001 ONLY
* 27C801 ONLY
** 27C4001
27C801 ONLY

TO CNH7
KEYBOARD PCB

S095418000

Chassis Professional 8000
Text And Cpu Rev.1.1
Pg. 5/13

TO CPU/TEXT

TO AUDIO

SC1

SC2

RAV1OUT
RAV1IN
LAV1OUT
LAV1IN
AV1B
AV1SW
AV1G
AV1R
AV1BLK
CVBS1IN
SWOUT
CVBSSAT
CVBS1OUT

RAV2OUT
RAV2IN
LAV2OUT
LAV2IN
AV2SW
CHROMA2IN
CVBS2IN
CVBS2OUT

CW1 1n
CW2 470p
CW3 1n
CW4 470p
CW5 470p
CW6 1n
CW7 470p
CW8 1n
CW9 47p
CW10 47p
CW11 100p
CW12 100p
CW13 100p
CW14 10n
CW15 47u 16V
CW16 47u 16V
CW17 10n
CW18 1n
CW19 560n
CW20 100n
CW21 1n
CW22 1000u 35V
CW25 1n
CW26 560n
CW27 100u 16V
CW28 100u 16V
CW29 1000u 35V
CW30 1000u 35V
CW31 22n
CW32 22n
CW33 10n
CW34 10n
CW35 100u 16V
CW36 1n
CW37 1n
CW38 1u
CW39 1u
CW42 100u 35V
CW43 1u
CW44 1n
CW45 560n
CW46 1n
CW47 560n
CW48 1n
CW49 1000u 35V
CW50 1000u 35V
CW51 1000u 35V
CW52 22n
CW53 22n
CW54 10n
CW55 10n
CW56 100u 35V
CW57 47u 16V
CW58 1u
CW59
CW60
CW61 1n
CW62 2u2
CW63 1n
CW64 2u2

RW1 220R
RW2 470R
RW3 220R
RW4 220R
RW5 470R
RW6 220R
RW7 470R
RW8 3K9
RW9 470R
RW10 3K9
RW11 8K2
RW12 8K2
RW13 75R
RW14 75R
RW15 75R
RW16 75R
RW17 75R
RW18 75R
RW19 75R
RW20 68R
RW21 1K
RW22 4K7
RW23 68R
RW24 1K
RW25 4R7
RW26 8K2
RW27 4K7
RW28 4K7
RW29 22K
RW30 22K
RW31 0R
RW32 ***
RW33 1K
RW34 100K
RW35 5K1
RW36 47K
RW37 100R
RW38 100R
RW39 0R
RW40 0R
RW41 ***
RW42 1K
RW43 ***
RW44 0R
RW45 ***
RW46 IR 10W
RW47 10R
RW48 10R
RW49 1K
RW50 1K
RW51 39K
RW52 560K
RW53 560K
RW54 18K
RW55 0R
RW56 ***
RW57 1K
RW58 0R
RW59 ***
RW60 1K
RW61 100K
RW62 18K
RW63 22K
RW64 22K
RW65 10R
RW66 10R
RW67 1K
RW68 39K
RW69 0R
RW70
RW71 1K
RW72 1K
RW73 1K
RW74 220R
RW75 47K
RW76 47K
RW77 4K7
RW78 1K
RW79 220R
RW80 1K
RW81 47K
RW84 1K
RW85 47K
RW86 3K3
RW87 100K
RW88 10K

TW1 BC847B
TW2 BC847B
TW3 BC847B
TW4 BC847B
TW5 BC857B
TW6 BC857B
TW7 BC847B
TW8 BC847B
TW9 BC847B
TW10 BC857B
TW11 BC857B
TW12 BC847B
TW13 BC857B
TW14 BC847B
TW15 BC847B

DW1 BAS32L

ZW1 BZV55C-3V3

LW5 22uH
LW6 22uH
LW7 22uH
LW8 22uH
LW9 22uH
LW10 22uH

ICS2 TDA2616
ICS6 TDA2616
ICS3 TDA7053AT

+8.5V
+5VA
+27VA
+12V
-VP
+VP

MUTE
-INV2
-INV1
OUT2
OUT1

CNS4
CNS6
CNS7
CNS8

TSP7
TSP8
TSP9
TSP10
TSP11
TSP12
TSP31
TSP32
TSP33

PLS1
PLS2
PLS3

TO CNB1 WOOFER BOOSTER

R FRONT L

EXT L
EXT R

TO pin 18 ICR1

LINE OUT

WIRELESS BOX

PRO LOGIC ONLY

CENTER

REAR

EAR R
EAR G
EAR L

TO CNR2 SIGNAL PCB

Chassis Professional 8000
Audio Power Rev.1.3
Pg. 6/13

S095418000

TO AUDIO POWER/SCART

TO FRONT END

ICS4 SAA7710T

PRO LOGIC ONLY

ICS1
TDA9870A V2
TDA9875A V2 (NICAM)

ICS5 TDA7467D

SRS ONLY

TO CNH3 KEYBOARD PCB

S095418000

Chassis Professional 8000
Audio Rev.1.1
Pg. 7/13

TO AUDIO

TO BACK END

ICC2
TDA9321H

TUC1
UV1316 AS

FCC4
K9453M

FCC5
K3953M

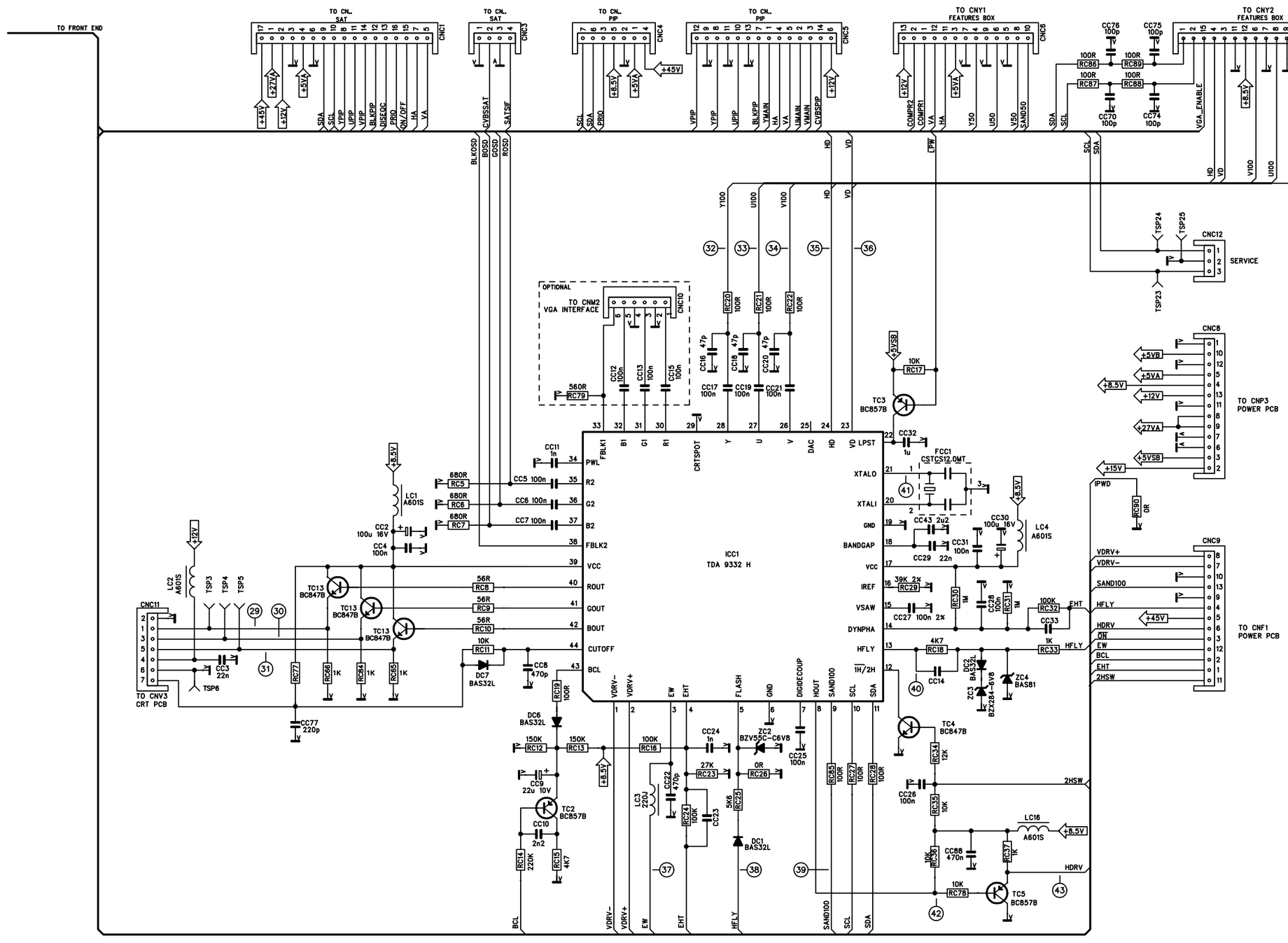
FCC3
TPS5,5MWA

TO CN..
COMB FILTER

SW1 L/L'
SW2 SCART 1 OUT SW

Chassis Professional 8000
Front End Rev.1.1
Pg. 8/13

S095418000



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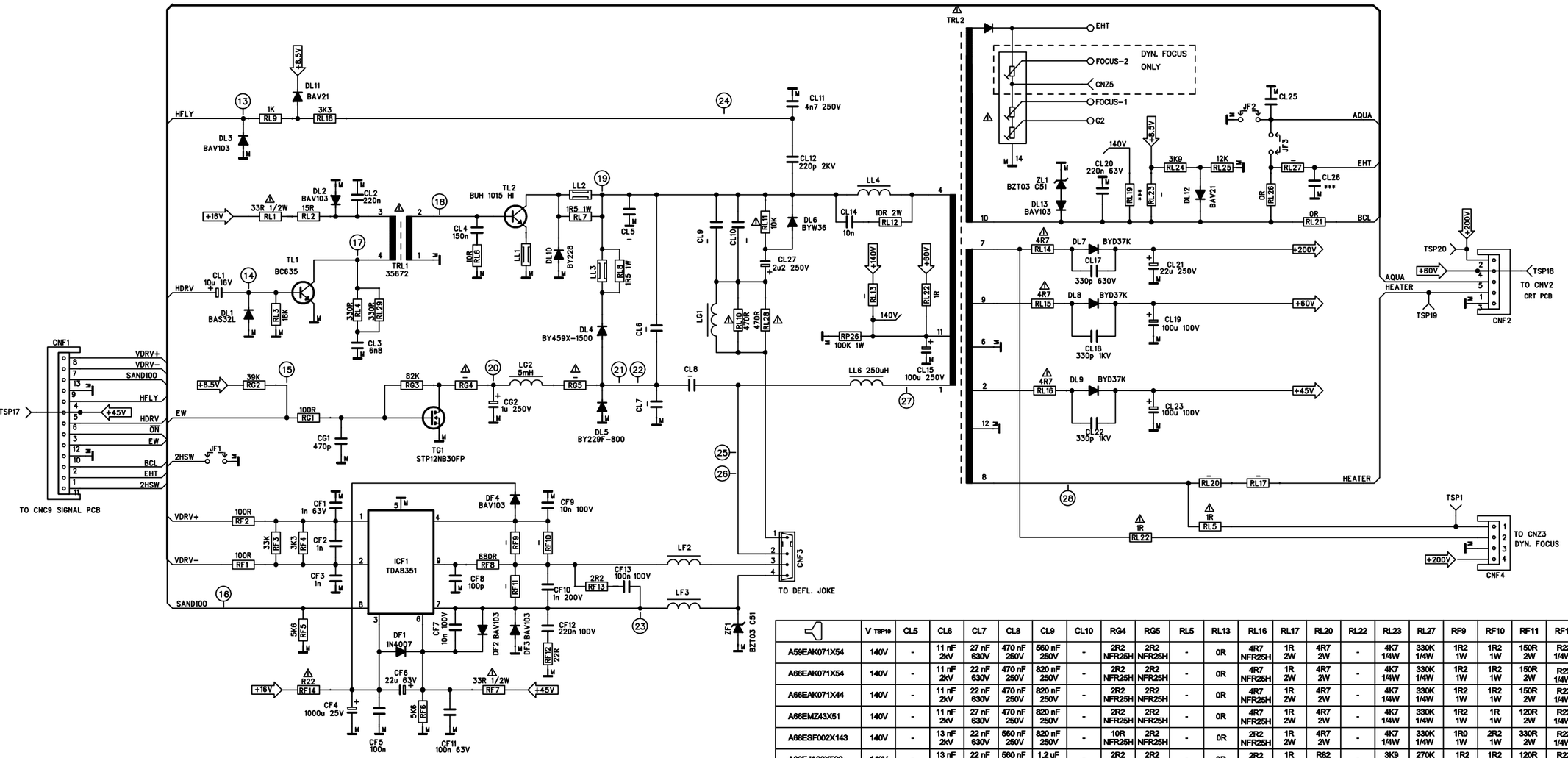
Chassis Professional 8000
Back End Rev.1.2
Pg. 9/13



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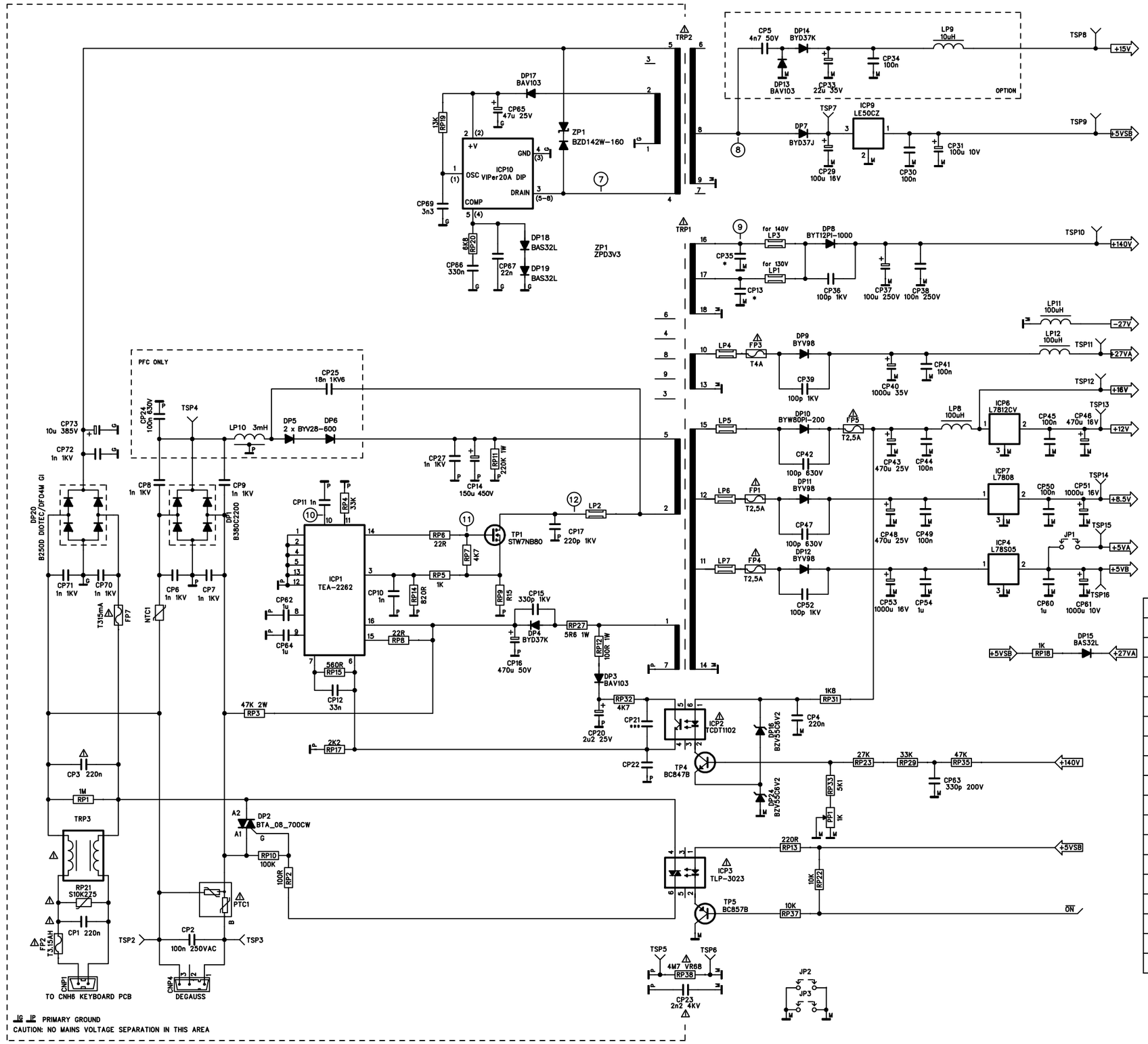
A59EAK071X54	140V	-	11 nF 2kV	27 nF 630V	470 nF 250V	560 nF 250V	-	2R2 NFR25H	2R2 NFR25H	-	0R	4R7 NFR25H	1R 2W	4R7 2W	-	4K7 1/4W	330K 1/4W	1R2 1W	1R2 1W	150R 2W	R22 1/4W	55331	ELD-1372.0019C
A68EAK071X54	140V	-	11 nF 2kV	22 nF 630V	470 nF 250V	820 nF 250V	-	2R2 NFR25H	2R2 NFR25H	-	0R	4R7 NFR25H	1R 2W	4R7 2W	-	4K7 1/4W	330K 1/4W	1R2 1W	1R2 1W	150R 2W	R22 1/4W	55331	ELD-1372.0019C
A68EAK071X44	140V	-	11 nF 2kV	22 nF 630V	470 nF 250V	820 nF 250V	-	2R2 NFR25H	2R2 NFR25H	-	0R	4R7 NFR25H	1R 2W	4R7 2W	-	4K7 1/4W	330K 1/4W	1R2 1W	1R2 1W	150R 2W	R22 1/4W	55331	ELD-1372.0019C
A68EMZ43X51	140V	-	11 nF 2kV	27 nF 630V	470 nF 250V	820 nF 250V	-	2R2 NFR25H	2R2 NFR25H	-	0R	4R7 NFR25H	1R 2W	4R7 2W	-	4K7 1/4W	330K 1/4W	1R2 1W	1R 1W	120R 2W	R22 1/4W	55331	ELD-1372.0019C
A68ESF002X143	140V	-	13 nF 2kV	22 nF 630V	560 nF 250V	820 nF 250V	-	10R NFR25H	2R2 NFR25H	-	0R	2R2 NFR25H	1R 2W	4R7 2W	-	4K7 1/4W	330K 1/4W	1R0 1W	2R2 1W	330R 2W	R22 1/4W	55331	ELD-1372.0019C
A80EJA33X522	140V	-	13 nF 2kV	22 nF 630V	560 nF 250V	1,2 uF 250V	-	2R2 NFR25H	2R2 NFR25H	-	0R	2R2 NFR25H	1R 2W	R82 2W	-	3K9 1/4W	270K 1/4W	1R2 1W	1R2 1W	120R 2W	R22 1/4W	55331	ELD-1372.0019C
W66ESF002X44	140V	-	12 nF 2kV	18 nF 630V	560 nF 250V	680 nF 250V	-	10R NFR25H	2R2 NFR25H	-	0R	4R7 NFR25H	1R8 2W	1R8 2W	-	4K7 1/4W	330K 1/4W	1R 1W	-	220R 2W	R22 1/4W	55331	ELD-1372.0019C
A68ERF031X044	130V	-	12 nF 2kV	22 nF 630V	560 nF 250V	820 nF 250V	-	5R6 NFR25H	2R2 NFR25H	0R	0R	2R2 NFR25H	0R	4R7 2W	1R R-FUSE	4K7 1/4W	330K 1/4W	1R0 1W	2R2 1W	220R 2W	0R	53571	ELD-1372.7006C
A68QCP893X232	130V	-	11 nF 2kV	18 nF 630V	560 nF 250V	680 nF 250V	-	10R 1W	10R 1W	-	0R	2R2 NFR25H	1R8 2W	1R8 2W	-	3K9 1/4W	250K 1/4W	1R0 1W	2R2 1W	120R 2W	R22 1/4W	55331	ELD-1372.0019C
W76EGV023X522	130V	-	12 nF 2kV	18 nF 630V	560 nF 250V	1,2 uF 250V	-	2R2 NFR25H	2R2 NFR25H	-	0R	4R7 NFR25H	1R 2W	R82 2W	-	3K9 1/4W	270K 1/4W	1R2 1W	-	330R 2W	R22 1/4W	55331	ELD-1372.0019C
W76ESF031X44	140V	-	12 nF 2kV	18 nF 630V	560 nF 250V	680 nF 250V	-	10R NFR25H	2R2 NFR25H	-	0R	4R7 NFR25H	1R8 2W	1R8 2W	-	4K7 1/4W	330K 1/4W	1R 1W	-	220R 2W	R22 1/4W	55331	ELD-1372.0019C
W76ERF031X044	130V	-	12 nF 2kV	22 nF 630V	470 nF 250V	820 nF 250V	-	10R NFR25H	2R2 NFR25H	0R	0R	4R7 NFR25H	1R8 2W	3R3 2W	1R R-FUSE	4K7 1/4W	560K 1/4W	1R 1W	3R3 1W	150R 2W	R22 1/4W	53571	ELD-1372.7006C
W76EJY011X121	130V	1 nF 2kV	11 nF 2kV	15 nF 630V	680 nF 250V	680 nF 250V	-	10R 1W	10R 1W	-	0R	4R7 NFR25H	1R 2W	R22 1/2W	-	3K9 1/4W	220K 1/4W	1R2 1W	10R 1W	330R 2W	R22 1/4W	55571	ELD-1372.0019C
A80EFF002X43	140V	-	13 nF 2kV	22 nF 630V	560 nF 250V	1,2 uF 250V	-	2R2 NFR25H	2R2 NFR25H	-	0R	2R2 NFR25H	1R 2W	3R3 2W	-	3K9 1/4W	270K 1/4W	1R2 1W	1R2 1W	150R 2W	R22 1/4W	55331	ELD-1372.0019C
W66QDE993X214	130V	1 nF 2kV	10 nF 2kV	18 nF 630V	470 nF 400V	560 nF 250V	47 nF 250V	10R NFR25H	2R2 NFR25H	-	0R	4R7 NFR25H	1R8 2W	1R8 2W	-	4K7 1/4W	330K 1/4W	1R2 1W	2R2 1W	120R 2W	R22 1/4W	53571	ELD-1372.0019C
W66ERF041X044	130V	1 nF 2kV	12 nF 2kV	18 nF 630V	560 nF 400V	820 nF 250V	-	10R NFR25H	2R2 NFR25H	0R	0R	4R7 NFR25H	1R8 2W	1R8 2W	1R R-FUSE	4K7 1/4W	220K 1/4W	1R 1W	3R3 1W	150R 2W	R22 1/4W	55571	ELD-1372.0019C
W76ERF042X044	130V	-	11 nF 2kV	18 nF 630V	470 nF 400V	820 nF 250V	-	10R NFR25H	2R2 NFR25H	-	0R	4R7 NFR25H	1R8 2W	1R8 2W	1R R-FUSE	4K7 1/4W	220K 1/4W	1R 1W	10R 1W	150R 2W	R22 1/4W	55571	ELD-1372.7006C

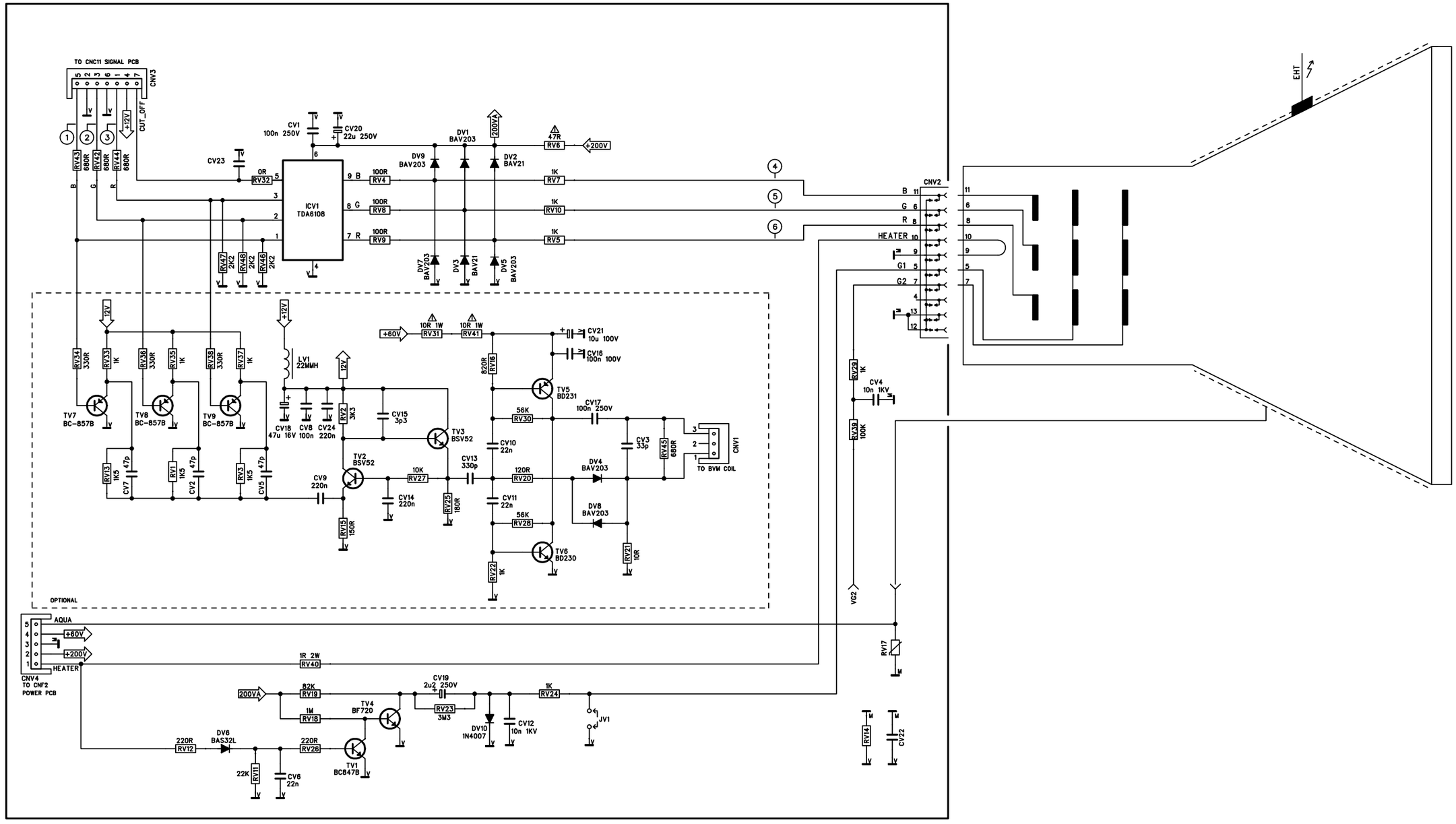
Chassis Professional 8000
Deflections Rev.1.10
Pg.10/13



	V TSP10	RP29	CP13	CP35	LP1	LP3
A59EAK071X54	140V	33K	-	100pF 1kV	-	BL01RN1-A62T5-01
A68EAK071X54	140V	33K	-	100pF 1kV	-	BL01RN1-A62T5-01
A68EAK071X44	140V	33K	-	100pF 1kV	-	BL01RN1-A62T5-01
A68EMZ43X51	140V	33K	-	100pF 1kV	-	BL01RN1-A62T5-01
A68ESF002X143	140V	33K	-	100pF 1kV	-	BL01RN1-A62T5-01
A80EJA33X522	140V	33K	-	100pF 1kV	-	BL01RN1-A62T5-01
W66ESF002X44	130V	27K	100pF 1kV	-	BL01RN1-A62T5-01	-
W76EGV023X522	130V	27K	100pF 1kV	-	BL01RN1-A62T5-01	-
W76ESF031X44	130V	27K	100pF 1kV	-	BL01RN1-A62T5-01	-
W76ERF031X044	140V	33K	-	100pF 1kV	-	BL01RN1-A62T5-01
A80EFF002X43	140V	33K	-	100pF 1kV	-	BL01RN1-A62T5-01
A68ERF031X044	134V	27K	100pF 1kV	-	BL01RN1-A62T5-01	-
A68QCP893X232	130V	27K	100pF 1kV	-	BL01RN1-A62T5-01	-
W76EJY011X121	130V	27K	100pF 1kV	-	BL01RN1-A62T5-01	-
W66QDE993X214	130V	27K	100pF 1kV	-	BL01RN1-A62T5-01	-
W66ERF041X044	130V	27K	100pF 1kV	-	BL01RN1-A62T5-01	-
W76ERF042X044	130V	27K	100pF 1kV	-	BL01RN1-A62T5-01	-

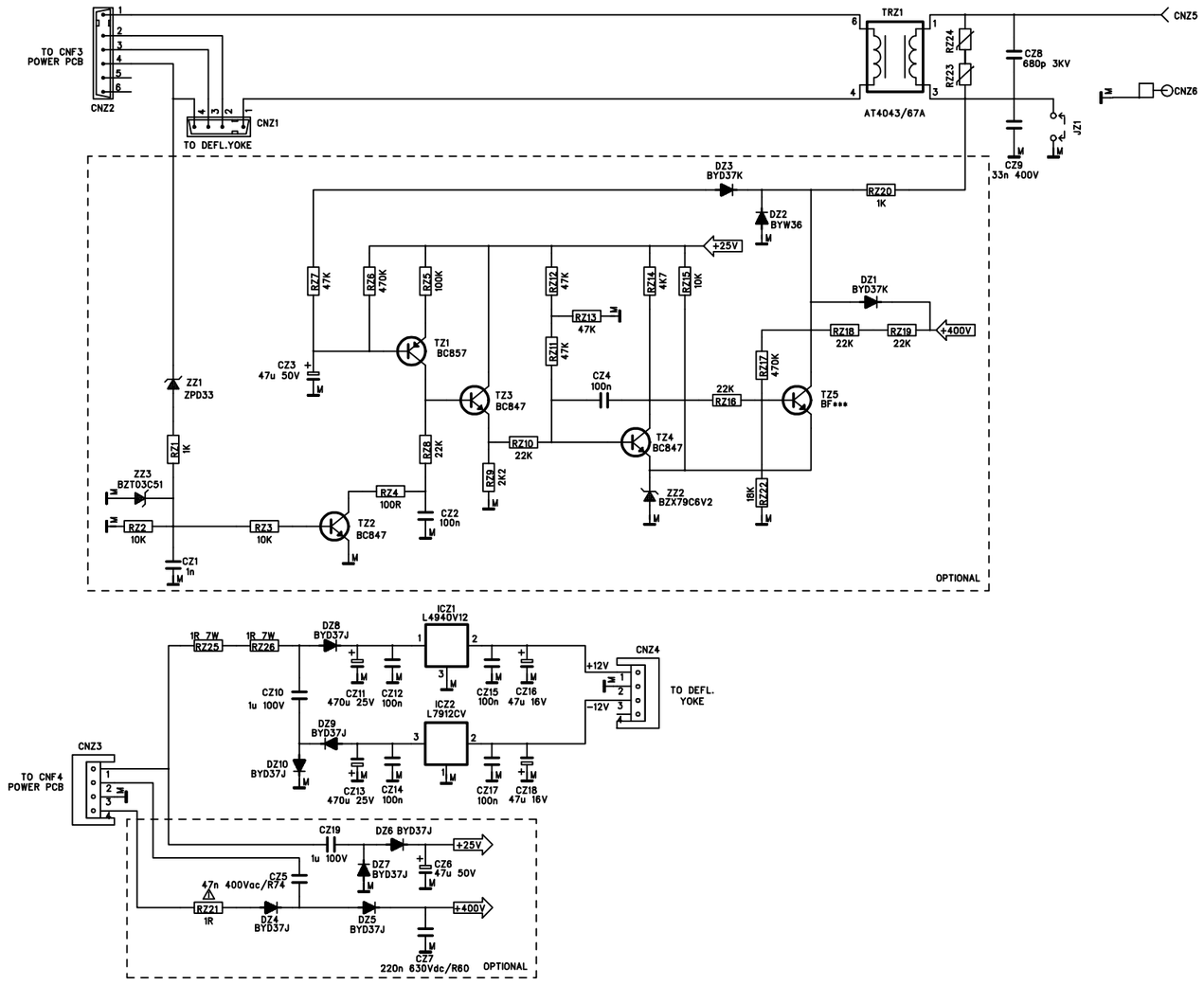
S095418000

Chassis Professional 8000
Power Supply Rev.1.8
Pg.11/13



Chassis Professional 8000
Rgb 8000 Rev.1.3
Pg.12/13

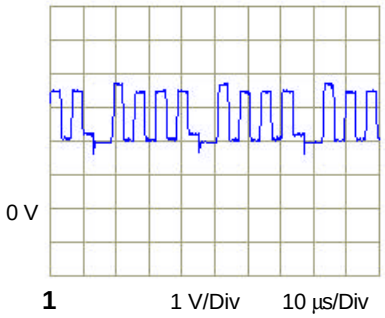
S095418000



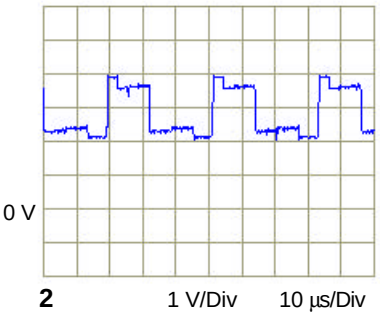
S095418000

Chassis Professional 8000
Dynamic focus Rev.1.0
Pg.13/13

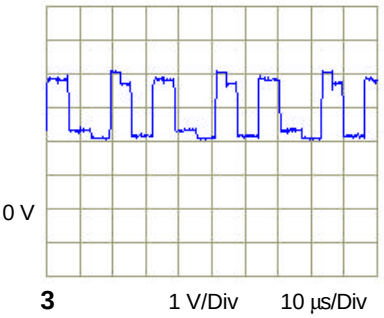
Oscillograms Chassis Professional 8000 (1/5)



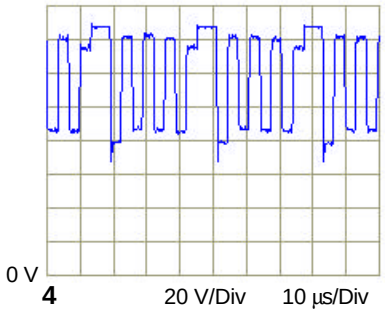
1 1 V/Div 10 µs/Div



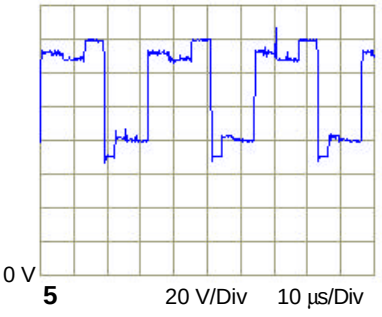
2 1 V/Div 10 µs/Div



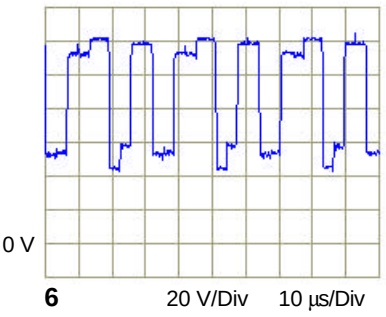
3 1 V/Div 10 µs/Div



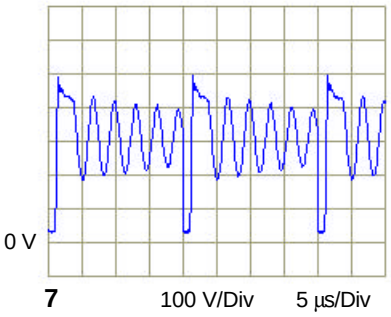
4 20 V/Div 10 µs/Div



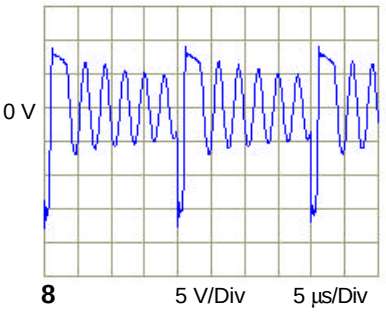
5 20 V/Div 10 µs/Div



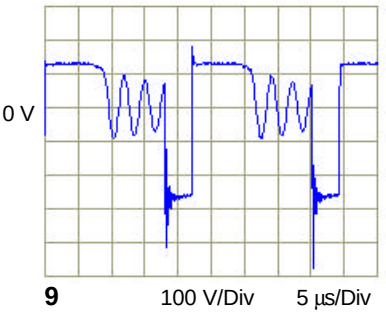
6 20 V/Div 10 µs/Div



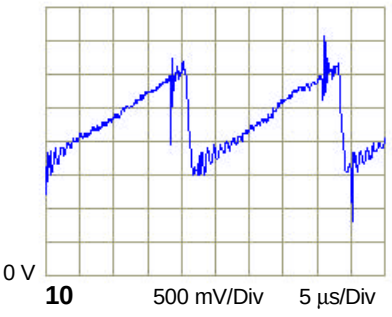
7 100 V/Div 5 µs/Div



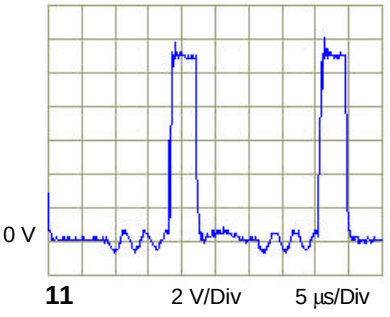
8 5 V/Div 5 µs/Div



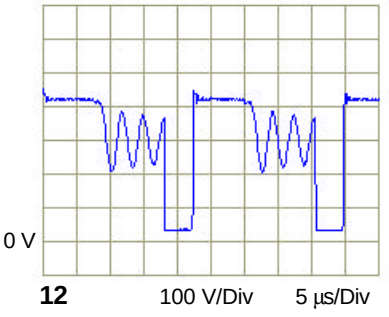
9 100 V/Div 5 µs/Div



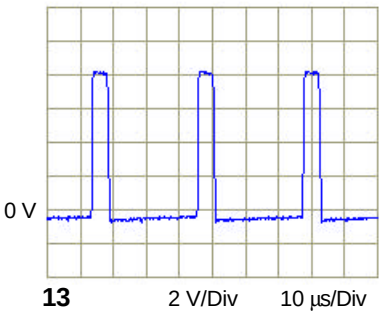
10 500 mV/Div 5 µs/Div



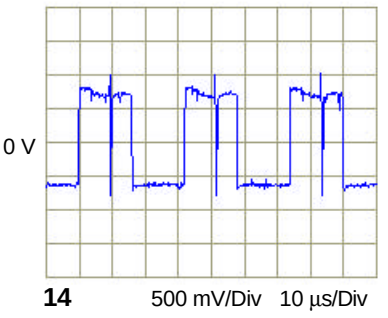
11 2 V/Div 5 µs/Div



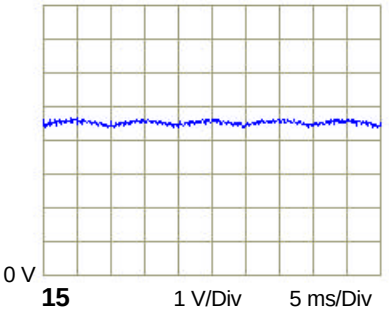
12 100 V/Div 5 µs/Div



13 2 V/Div 10 µs/Div

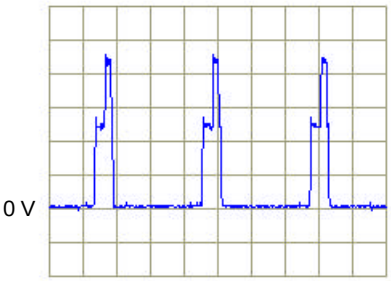


14 500 mV/Div 10 µs/Div

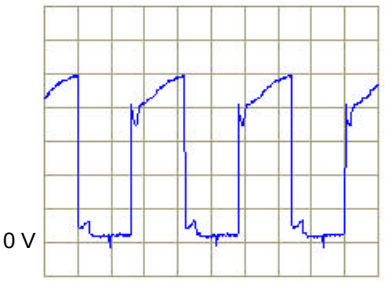


15 1 V/Div 5 ms/Div

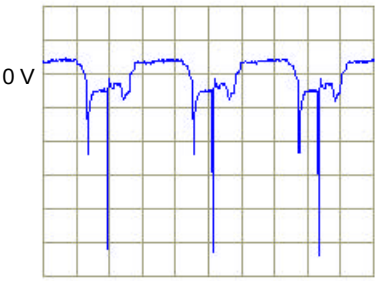
Oscillograms Chassis Professional 8000 (2/5)



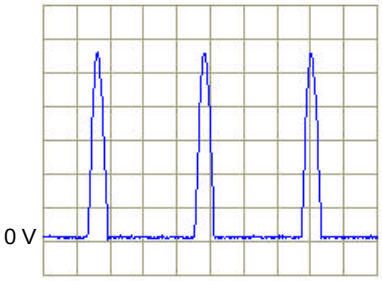
16 1 V/Div 10 µs/Div



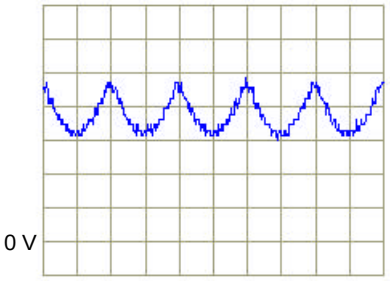
17 5 V/Div 10 µs/Div



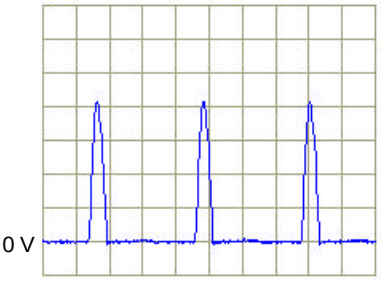
18 2 V/Div 10 µs/Div



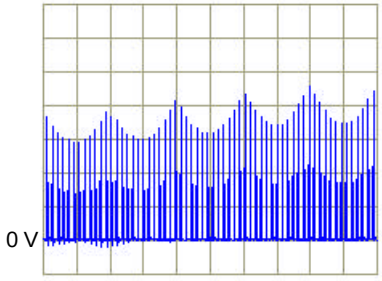
19 200 V/Div 10 µs/Div



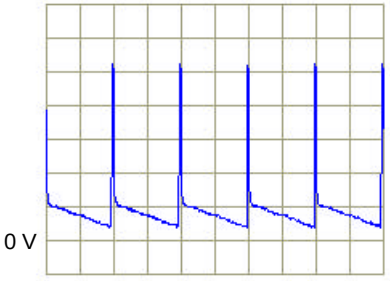
20 5 V/Div 5 ms/Div



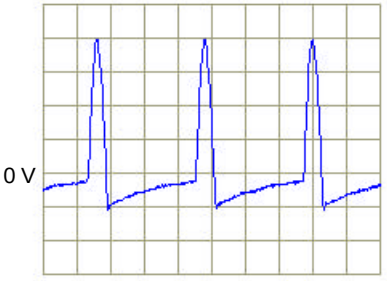
21 50 V/Div 10 µs/Div



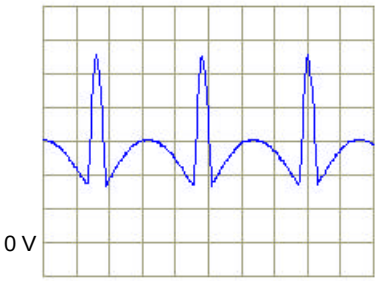
22 50 V/Div 5 ms/Div



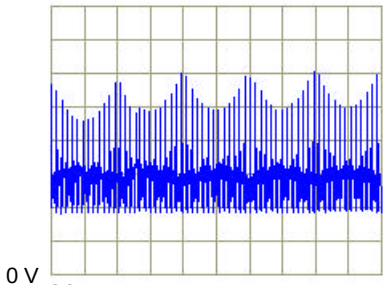
23 10 V/Div 5 ms/Div



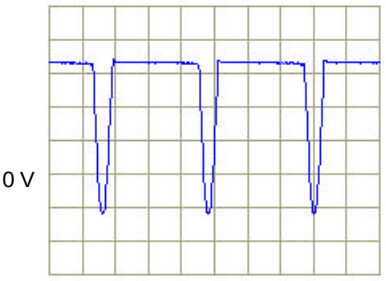
24 10 V/Div 10 µs/Div



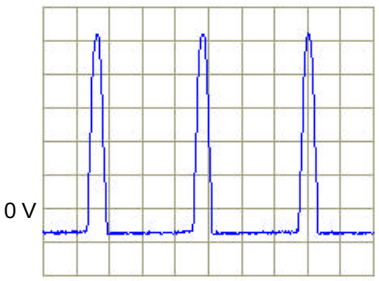
25 50 V/Div 10 µs/Div



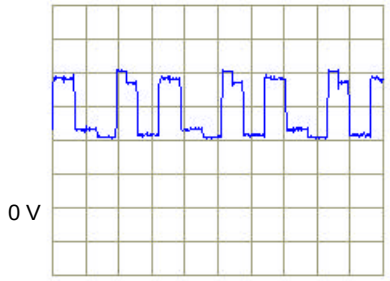
26 50 V/Div 5 ms/Div



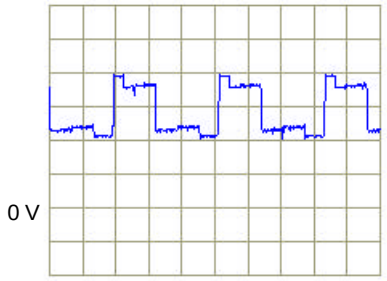
27 50 V/Div 10 µs/Div



28 5 V/Div 10 µs/Div

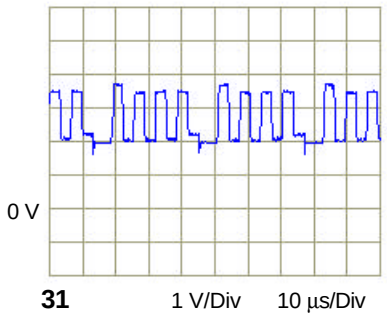


29 1 V/Div 10 µs/Div

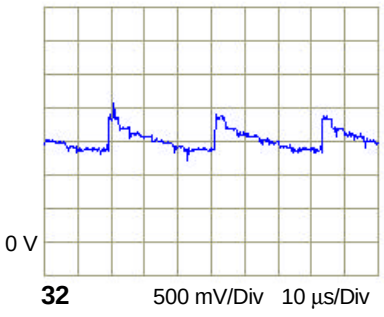


30 1 V/Div 10 µs/Div

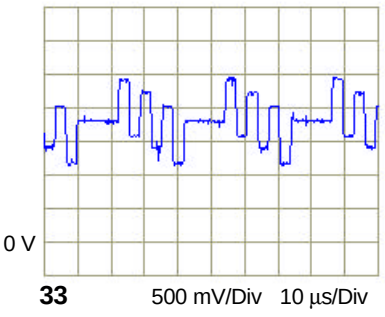
Oscillograms Chassis Professional 8000 (3/5)



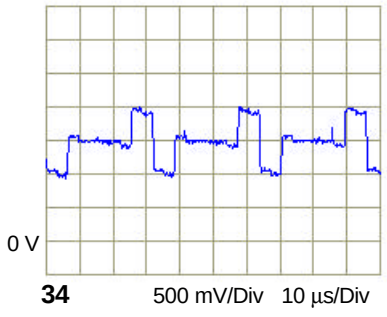
31 1 V/Div 10 µs/Div



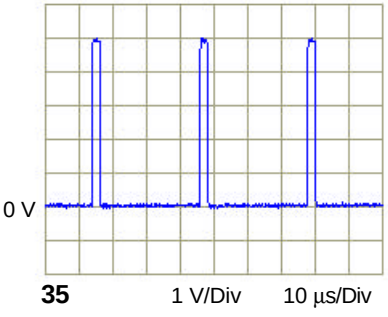
32 500 mV/Div 10 µs/Div



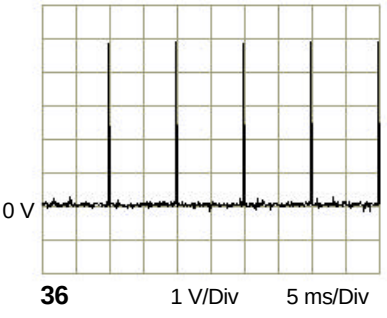
33 500 mV/Div 10 µs/Div



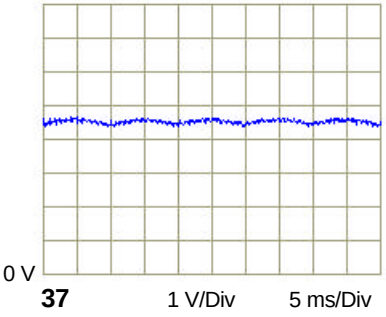
34 500 mV/Div 10 µs/Div



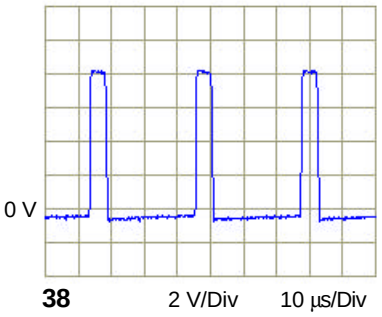
35 1 V/Div 10 µs/Div



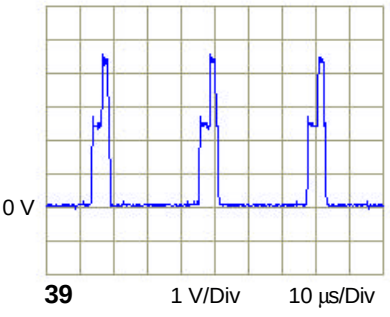
36 1 V/Div 5 ms/Div



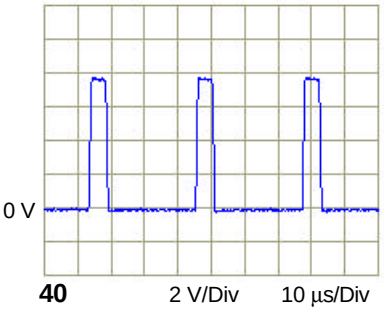
37 1 V/Div 5 ms/Div



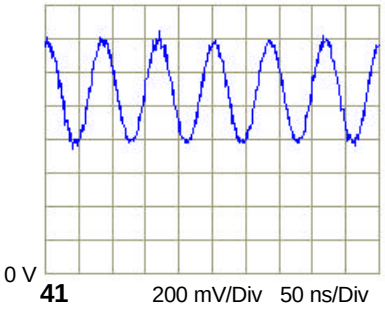
38 2 V/Div 10 µs/Div



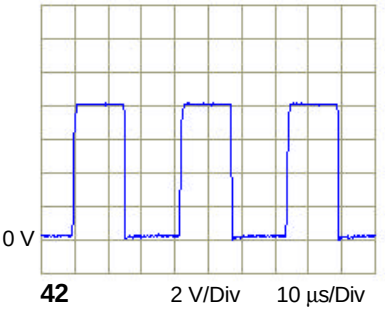
39 1 V/Div 10 µs/Div



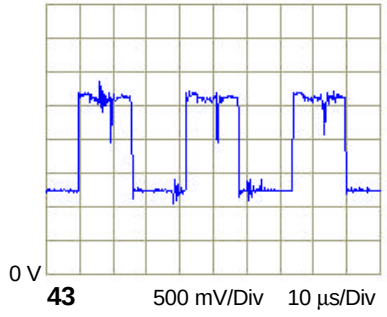
40 2 V/Div 10 µs/Div



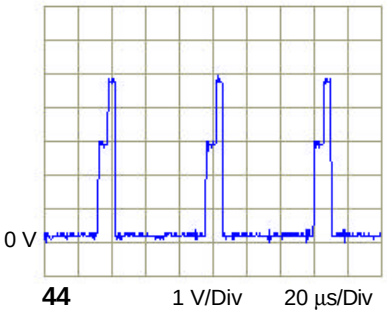
41 200 mV/Div 50 ns/Div



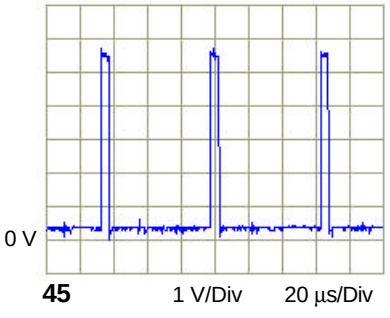
42 2 V/Div 10 µs/Div



43 500 mV/Div 10 µs/Div

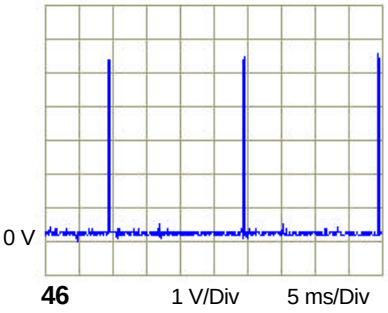


44 1 V/Div 20 µs/Div

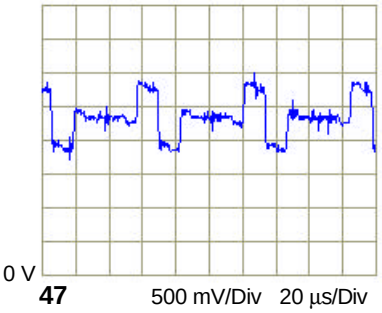


45 1 V/Div 20 µs/Div

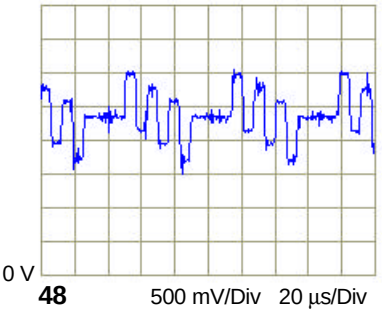
Oscillograms Chassis Professional 8000 (4/5)



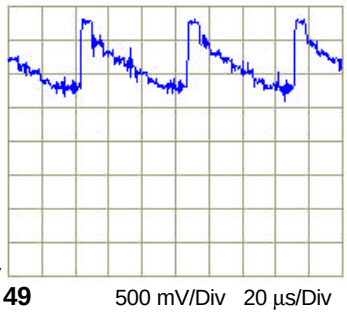
46 1 V/Div 5 ms/Div



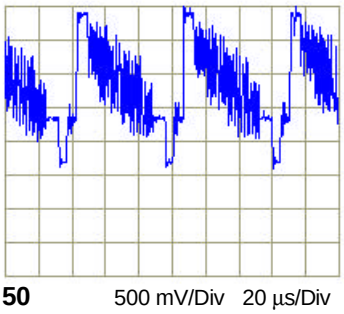
47 500 mV/Div 20 µs/Div



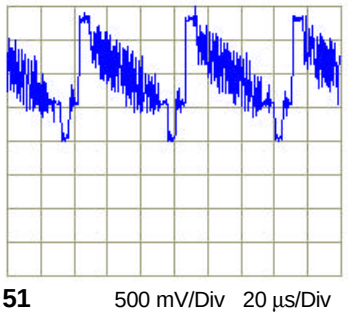
48 500 mV/Div 20 µs/Div



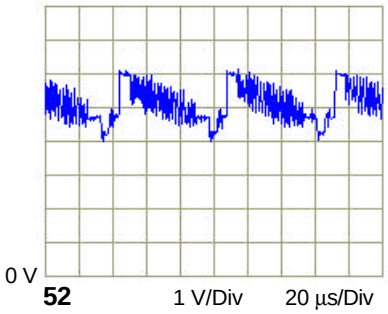
49 500 mV/Div 20 µs/Div



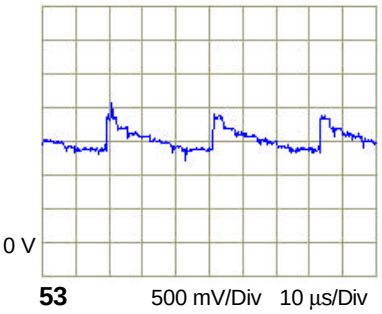
50 500 mV/Div 20 µs/Div



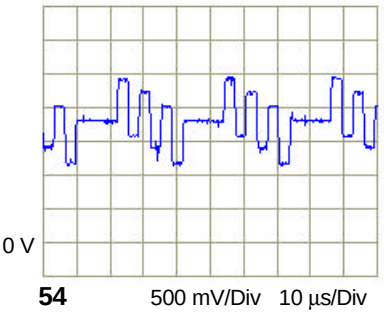
51 500 mV/Div 20 µs/Div



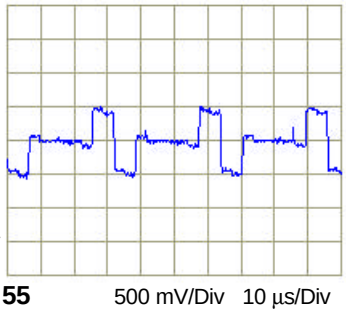
52 1 V/Div 20 µs/Div



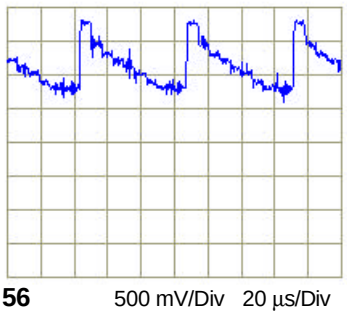
53 500 mV/Div 10 µs/Div



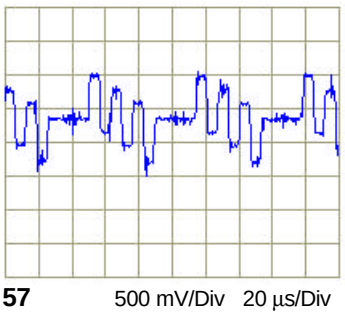
54 500 mV/Div 10 µs/Div



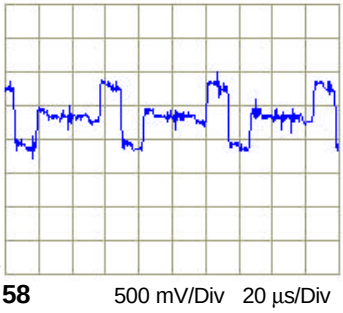
55 500 mV/Div 10 µs/Div



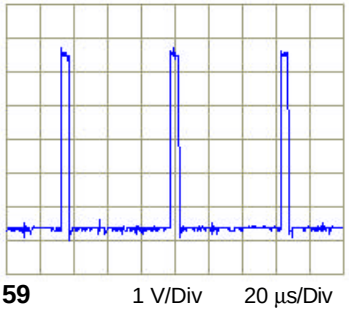
56 500 mV/Div 20 µs/Div



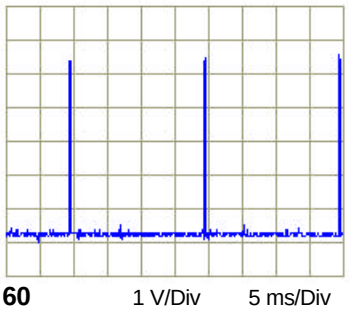
57 500 mV/Div 20 µs/Div



58 500 mV/Div 20 µs/Div

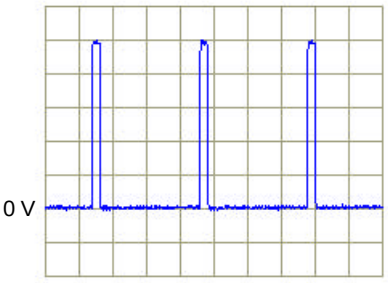


59 1 V/Div 20 µs/Div

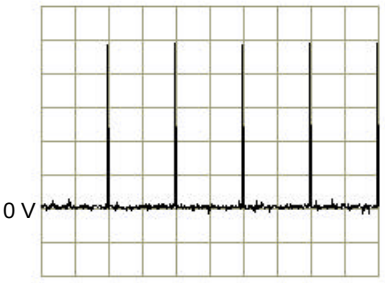


60 1 V/Div 5 ms/Div

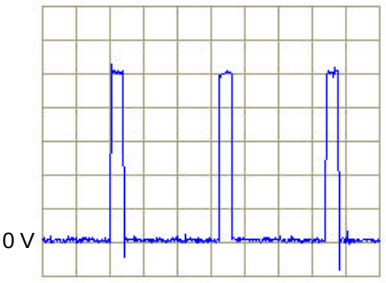
Oscillograms Chassis Professional 8000 (5/5)



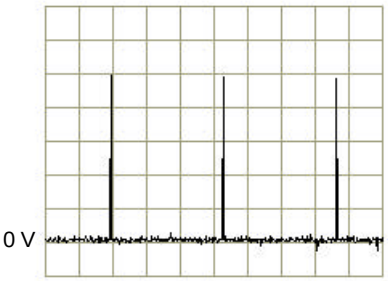
61 1 V/Div 10 µs/Div



62 1 V/Div 5 ms/Div



63 1 V/Div 10 µs/Div



64 1 V/Div 5 ms/Div

Chassis Professional 8000
Circuit description

Modifications reserved - Aenderungen vorbehalten - Con riserva di modifiche

Power supply

Consists of two completely separate sections:

- **Stand-by power supply**
- **Main power supply**

Stand-by power supply

This is an SMPS (**S**witch **M**ode **P**ower **S**upply) operating at about 50 kHz with primary side control and stabilisation performed by the integrated circuit VIPer20A (ICP10), which provides exclusively the voltages required by the appliance in stand-by mode.
In these conditions the main power supply is completely deactivated, which allows for an exceptionally low overall consumption (< 1 W), far lower than even the most stringent standards.
The transformer TRP2 performs the dual function of isolating the appliance from the mains power supply and generating on the secondary winding the supply voltage + 5 Vsb which powers the IR receiver (IRH1), the microcontroller (ICR1), the NVM memory (ICR3), the reset circuit (ICR6) and the EPROM (ICR2) containing the software. A duplicator circuit is used to obtain a voltage of about 20 V used for turning off the electromagnetic mains switch (optional).

Main power supply

This is an SMPS (**S**witch **M**ode **P**ower **S**upply) operating at about 45 kHz with secondary side control and stabilisation performed by the integrated circuit TEA2262 (ICP1).
The transformer TRP1 performs the dual function of isolating the appliance from the mains power supply and generating the correct supply voltages on the various secondary windings.
In stand-by the TRIAC DP2 does not conduct, so the circuit (including the PTC powering the degaussing coil) is completely disconnected from the power supply and therefore has no power consumption.
When it is turned on by means of the photo-coupler ICP3, the TRIAC DP2 is made to conduct and the rectified and smoothed mains voltage across CP14, via winding 5/2 of transformer TRP1, is present on the collector of TP1, which does not conduct because ICP1 is not yet powered.
Simultaneously CP16 is charged from mains via RP3. As soon as the voltage across it reaches a value of about 10 V, the integrated circuit begins to operate and generates on pin 14 the driving pulses for making transistor TP1 conduct.
Current therefore begins to flow in the primary winding 5/2 of the transformer and across the winding 1/7 there are formed pulses which are rectified by DP4 and smoothed by CP16 and ensure a complete power supply of ICP1.
At the same time currents are also induced in the secondary windings; after being rectified and smoothed these currents generate the various power supply voltages.
A voltage taken from across CP37 by way of the voltage divider made up of RP35/RP29/RP23/RP33/PP1 is applied to the base of TP4 and causes a proportional current to flow in the photodiode contained in the optocoupler ICP2.

This value is transferred via the photo-coupler emitter to the input (pin 6 of ICP1) of a comparator which regulates the duration of the base drive pulses of transistor TP1.
This controls the time for which current is allowed to flow in the primary winding (and therefore regulates the energy fed into the transformer) and gives extremely precise stabilisation of the voltages available on the transformer's secondary windings.
The circuit made up of CP24/CP25/LP10/DP6 controls the current harmonics towards the mains power supply and may be present or absent depending on applicable regulations.

This solution activates automatic demagnetisation of the CRT every time the appliance is turned on, not just from the switch but also from stand-by. This solves the problem of possible purity degradation if the appliance (as often happens) is not turned off regularly from the mains switch.

Protection

To protect against supply voltage variations, the integrated circuit ICP1 interrupts generation of driving pulses to pin 14 if the voltage at pin 16 is higher than about 15.5 V.
Furthermore the current that flows in the transistor TP1 is read across RP9 and is applied to pin 3 via RP5/RP14; if it exceeds the maximum permitted value, the driving pulses to pin 14 are interrupted.
This protects the transistor TP1 and safeguards against short-circuits in the transformer's secondary windings.

Microcontroller

A latest-generation device with 16-bit architecture (ICR1 - M30612SFP) is used, supported by an EPROM (**E**lectrically **P**rogrammable **R**ead **O**nly **M**emory) that contains all the appliance software.
The various functions are controlled either by changing the logic state (L or H) of some pins on the microcontroller or by way of a two-wire digital bus (pins 27/28) designated IIC-bus (**I**nter **I**ntegrated **C**ircuit Bus).
An additional IIC-bus (pins 91/92) is devoted exclusively to dialoguing with the NVM memory (**N**on **V**olatile **M**emory) (ICR3) to provide maximum protection against data corruption.
Connected to pins 32/33/34 there is also a special high-speed M3-L bus dedicated exclusively to dialoguing with ICR5 (SDA5273-2P) for managing teletext and graphic OSDs (**O**n **S**creen **D**isplays).
The signal from the IR receiver is applied to pin 7 of the microcontroller, which begins its activity when the supply voltage is present and the reset cycle (active L) at pin 12 has been completed.
For this reason if the system shows abnormal behaviour it is important to turn the power switch off and back on again to generate a reset pulse allowing the program to be reinitialised.

When the reset pulse has terminated, the microcontroller waits until the control signals from IR are present at pin 7 or those from the local control are present at pin 97.
Execution of the entire program is timed by the clock signal generated by the 10 MHz crystal and applied to pins 13/15.
A valid command for exiting standby generates a level L at output pin 100, thereby enabling powering up of all the circuits as described in the power supply section.
The microcontroller first verifies that the power supply has come on correctly by checking that pin 18 (START) is at level H, then all the possible peripherals are interrogated via the IIC-Bus to recognise the configuration of the appliance and thereby structure the program.
All data regarding the operating parameters required for correct setting of all the functions (tuning, analogue values, geometries, option bytes, etc.) are subsequently called up from the memory ICR3.
The various functions are carried out and commands given primarily via the digital buses.
The functions of the remaining microcontroller pins are described below:

Pin 1 - Output (LPW) which goes to level L during the main power supply start-up to activate initial operation of the horizontal deflection stage.

Pins 3/4 - DAC (**D**igital to **A**nalog **C**onverter) outputs for headphone volume and balance control.

Pin 19 – Input connected to vertical flyback pulse used for managing communication timing with 100 Hz processor.

Pin 20 – Output which goes to level H to activate audio power amplifier muting.

Pin 21 – Output for controlling satellite antenna system switching.

Pins 24/25 – Inputs for automatically recognising the configuration of the 100 Hz conversion system.

Pin 26 – Input for automatically recognising correspondence of deflection hardware used.

Pin 30 – Input for automatically recognising the presence of the Comb filter.

Pins 35/36/37 – Outputs reserved for future use.

Pin 38 – Output for controlling loudspeaker configuration in Dolby Pro Logic mode.

Pin 89 – Input used for controlling VGA input enabling.

Pin 93 – Output for controlling illumination of local control LED.

Pin 94 – Output for controlling activation of electromagnetic switch (if present).

Pin 95 – Input connected internally to an ADC (**A**nalog to **D**igital **C**onverter) to measure the value of the tuner's AGC voltage.

Pin 97 – Input connected internally to an ADC (**A**nalog to **D**igital **C**onverter) to measure the value of the voltage generated by the local control keys and hence discriminating the control.

Note that the software also identifies the configuration of the appliance by way of an option code contained in the memory ICR3. This option code must therefore be checked and if necessary adjusted if ICR3 is replaced. The correct value for each model is marked on the label on the back of each item after the words “option code”. It can be set by entering service mode (follow the necessary safety procedures).
In this mode it is also possible to make all the adjustments for the various calibrations under the control of a specific program contained in the microcontroller, which also verifies automatically whether NVM data initialisation operations are required.

NVM memory (ICR3)

This is an EEPROM (**E**lectrically **E**rasable **P**rogrammable **R**ead **O**nly **M**emory) NVM (**N**on **V**olatile **M**emory) with a 16K bit capacity and an IIC-bus interface.
The microcontroller writes and reads all the variable data relevant to operation in the memory.
In addition to user option data (tuning, analogue levels, etc.), memory ICR3 also contains data regarding the settings of many of the appliance’s functions, such as geometries, option bytes, white level adjustment, etc.
If the memory is replaced, these settings must be restored through the appropriate service procedures.
However, the program contains special check routines so the appliance can be turned on when the memory is not programmed or even not present, thereby simplifying the service procedures.

Video signal processing / deflection

The various items of information in the video signal are processed by the integrated circuits TDA9321H (ICC2), TDA9332H (ICC1) and SAA4977H (ICY1).

- **TDA9321H**

Video

The IF signal from the tuner whose band is limited by the surface wave filter FCC5 is routed to pins 2/3, which are connected to the input of the video demodulator (synchronous PLL type with active carrier regeneration). This assures ultralinear demodulation, an excellent demodulation figure, a low harmonic content and an excellent impulsive response.
The only residual adjustment that must be carried out on the video demodulation circuits is tuning of coil LC9 of the VCO oscillator and setting the working point of the tuner AGC, which is controlled by way of pin 62. Both the adjustments are performed fully automatically by the software in service mode.
The baseband video signal is available with an amplitude of 2 Vpp at pin 10 and is applied via the audio carrier suppression filter FCC3 to pin 12, which represents the input of the group delay correction circuit controlled by software.
After this treatment the signal is available at pin 13 with an amplitude of 2 Vpp.
From here it is sent both to the SCART 1 output and to one of the video selector inputs (pin 14) after being taken to the level of 1 Vpp.
Further video inputs are available at pins 16 (AV1), 18 (SAT), 20 (AV2) and 23 (FRONT). S-VHS sources whose chrominance signals are connected to pins 21 and 24 can also be connected to the AV2 and FRONT inputs respectively.
The video signal of the selected source is taken from pin 26 to power the teletext decoder.
In order to send the selected signal to the screen, it is routed internally through a band-pass filter to remove the chrominance signal and a trap to eliminate the colour subcarrier from the luminance signal.
In the case of SVHS sources these circuits are bypassed.
Switched capacitance circuits are also included for creating luminance delay lines.
The chrominance signal is demodulated in accordance with the PAL/SECAM/NTSC standard identified automatically and with the aid of integrated delay lines. The carrier reconstruction oscillators are connected to their respective crystals via pins 54 and 57.
Original spare parts must be used for these components as all the functions of the integrated circuit take their frequencies as reference.
After the treatments described above, the luminance signal Y50 and the colour difference signals U50, V50 are available on pins 49, 50 and 51 respectively.
There are also two video outputs which can be freely connected to any of the inputs and are used for the SCART2 output (pin 34) and for the PIP module (pin 32).
Pins 25, 26, 27, 28, 29 and 30 are used for connection to an optional comb-filter. The SCART1 RGB input is connected to pins 40, 41, 42 and 43 and the PIP source Y/U/V signals to pin 36, 37, 38, 39.
Pins 19 and 22 are outputs which can be placed in an H or L level under the control of the software and are used respectively for L/L' switching of the audio filter FCC4 and for switching of the video signal output on SCART1 by means of the transistors TW3, TW4, TW5, TW6, TW7 and TW8.

Audio

The IF signal from the tuner whose band is limited by the surface wave filter FCC4 is routed to pins 63/64, which are connected to the mixer consisting of a multiplier which

converts the IF signal to the intercarrier frequency. This frequency is available at pin 5 after a high-pass filter which eliminates the video content.
The is also an AM audio demodulator whose output is also connected to pin 5.

Deflection

The horizontal and vertical synchronising signals are extracted from the screen video signal.
The horizontal synchronising pulse HA is available at pin 60, the vertical synchronising pulse VA at pin 61 and the sandcastle pulse at pin 59.

- **SAA4977H (1fH / 2fH converter)**

The signals Y50, U50, V50 coming from ICC2 are connected to input pins 26, 28 and 30, while the horizontal HA and vertical VA synchronising signals are connected to pins 22 and 20 respectively.
To double the field frequency (100 Hz) it is necessary to write the same original field twice on the screen.
For this purpose, the incoming video signals are first digitalised by sampling them at 8 bits and then transferred to a memory (ICY4), from which they are read at double speed. Digital to analog reconversion is then performed and the double-frequency analog signals are available at pins 79, 76 and 74. The circuits formed by TY1/TY2, TY3/TY4 and TY5/TY6 adapt the levels for the ICC1 inputs.
It is also necessary to generate the HD/VD synchronising pulses at double frequency and synchronous to those of the original HA/VA signal.
This is done with the help of the PLL circuit made up of ICY2 and ICY3.
All checks and signals needed for the various functions and for memory management are inside ICY1, which also contains a microcontroller and resident software to carry out the various activities. The transistors TY8/TY9 form the reset circuit for this microcontroller.
The integrated circuit ICY9 switches the synchronising signals between the internal source (pins 2 and 5) and the VGA input (pins 3 and 6). Switching is controlled by pin 3 of ICY1.
The integrated circuit ICY5 (if present) increases the definition by acting on the signal's transient fronts.

- **TDA9332H**

Video

Signals Y100, U100 and V100 from the 100Hz conversion module are connected to pins 26, 27 and 28.
The RGB signals for performing saturation, contrast and brightness controls are restored by way of the matrix circuits. The signals for driving the video final amplifiers are therefore available on output pins 40, 41 and 42.
Pin 44 is the input for the measurement pulses for adjusting the cut-off, which uses an automatic system for alignment at both low and high current, thereby optimising the

performance of the tube. Adjustment of voltage Vg2 is fully automated in service mode by a special software procedure.
Pin 43 is the control input for automatic limitation of the tube current.
Pins 35, 36, 37 and 38 are the inputs of the RGB signals for the OSD and teletext, while pins 30, 31, 32 and 33 are the RGB inputs of the VGA source. These inputs require sources with a horizontal frequency of 32 kHz.

Deflection

The entire management of the deflection controls refers to the 12 MHz oscillator FCC1 connected to pins 20/21.
When turned on, the transistor TC3 is made to conduct by pin 1 of microcontroller ICR1, thereby powering pin 22. This activates the output of horizontal driving pulses from pin 8 at a frequency of about 50 kHz. This starts the horizontal deflection stage, whose consumption permits stabilisation of the power supply.
When the power supply voltage on pins 17/39 reaches 8V, the horizontal driving output progressively switches to its rated frequency (32 kHz) and the steady-state operating mode is reached. The software now disconnects the power supply voltage from pin 22.
The transistor TC4 is normally inhibited because its base, via RC34, is connected to earth by the jumper JF1 situated on the power supply/deflection circuit and this level L is also carried to pin 26 of the microcontroller. This also allows the correct operating frequency of ICC1 (H = 32 kHz; L = 15 kHz) to be provided via pin 12, which also depends on the deflection hardware used.
The horizontal HD and vertical VD synchronising pulses are applied to input pin 24 and 23 respectively.
Pin 13 is the input of the horizontal flyback pulse and pin 4 is the input for dimensional stabilisation of the image as the tube current varies.
Pin 9 is used as input to protect the tube, blancking it out in the event of a fault in the vertical deflection circuits.
Pins 1 and 2 are the symmetrical outputs for vertical driving and pin 3 is the output for E/W correction control.
All the adjustments are performed in service mode by a special support software program.

Video final amplifiers

The RGB signals available at pins 40/41/42 on ICC1 (TDA9332H) must be amplified and inverted in order to reach the level required for driving the CRT.
The integrated circuit TDA6108 (ICV1) is used for this purpose.
The final amplifier inputs are connected to pins 1/2/3 and the outputs (pins 7/8/19) are connected directly to the CRT's cathodes via the protection resistors RV5/RV7/RV10.
A copy of the currents flowing in the CRT's cathodes are available at pin 5 and this information is sent to the video processor TDA9332H for automatic cut-off control circuit operation.

Transistors TV1 and TV4 form a circuit which serves to eliminate CRT spot formation when the appliance is turned off.
During operation the heater's supply pulses, which are rectified and filtered by DV6 and CV6, keep TV1 saturated and hence inhibit TV4.
The capacitor CV19 is therefore able to charge up at the voltage of +200V by way of RV19 and DV10. Grids 1 (G1) of the tube remain at ground potential since DV10 is conducting.
As soon as the appliance is turned off, the final line stage stops providing the heater's power supply pulses; TV1 is inhibited and TV4 is saturated by the +200V voltage still present and applied at its base via RV18.
The collector of TV4 grounds the positive armature of CV19. As a result, grids 1 of the CRT are polarised with the negative 200V voltage present on its negative armature since the diode DV10 is now polarised the other way round.
This way the CRT is completely inhibited for the time it takes CV19 to discharge, thus preventing spot formation.

The RGB signals, decoupled by means of the transistors TV7/TV8/TV9, are added together and transferred to the power stage made up of TV5 and TV6 by means of the circuit made up of TV2 and TV3. The coupling capacitor CV13 together with the power stage input impedance forms a differentiator circuit which generates pulses of suitable polarity upon each signal transition. This drives a special deflection coil on the CRT which modulates the deflection velocity (**B**eam **V**elocity **M**odulation), thereby significantly improving image definition.

Horizontal deflection

The output line transistor is driven by the transformer TRL1 whose primary winding is driven by the transistor TL1, connected to the horizontal drive output of ICC1 via the emitter-follower TC5.
The horizontal deflection stage is carried out in a conventional manner with the deflection transistor TL2, the diode (DL4/DL5) EW modulation circuit and pin-cushion distortion correction (CL8/LL6). The correction signal EW is injected into the central point of the diodes via LG2.
The capacitive divider formed by CL11/CL12 is used for picking up the horizontal flyback pulse to be applied to pin 13 of ICC1, limiting its maximum value to 8V by means of the diode DL11.

Vertical deflection – EW correction

These functions are performed by the integrated circuit TDA8351 (ICF1). This is a power amplifier with a bridge output that allows the vertical deflection coils to be connected directly to pins 4 and 7. The resistances RF9/RF10, which provide pin 9 with the necessary feedback signal, are placed in series.
The differential input circuit (pins 1/2) is driven by the voltage formed across RF3/RF4 for the symmetrical driving currents provided by ICC1.
Pin 8 is an output which switches to the value H at vertical flyback. This signal is connected to pin 9 of ICC1 and is used to protect the CRT in the event of failure of the vertical deflection circuits.
Two separate supply voltages are used for the deflection part (pin 3) and for generating the flyback pulse (pin 6), thereby achieving a high value of efficiency.
The power stage for EW correction consists of transistor TG1 which is driven directly by ICC1 and whose collector is connected to the injection coil LG2 by means of RG4.

Audio signal processing

The various audio functions are treated by the circuits TDA9870/5A (ICS1), SAA7710T (ICS4), TDA7467D (ICS5), TDA2616 (ICS2/ICS6), TDA7053AT (ICS3).

- **TDA 9870A / TDA 9875A**

The integrated circuits have the same basic functions: the version TDA9875A additionally contains a complete NICAM digital audio decoder.
The audio IF signal from pin 5 of ICC2 is applied to input pin 12. The AM audio signal (in the case of L/L' standard) is also extracted by way of the transistor TS1 and the low-pass filter formed by RS34 and CS13 and is taken to input pin 29. A second IF input (pin 10) is used for the audio signal of the satellite receiver (if present).
All audio functions (demodulation, stereo/NICAM decoding, input/output switching, volume/tone control, effects) for BG/DK/I/LL' standards are contained in the integrated circuit and are totally selected and controlled via software.
The audio inputs from the SCART 1 and SCART 2 sockets are connected to pins 33/34 and 36/37 respectively, while the audio input from the front RCA sockets (optional) is connected to pins 31/32.

Pins 47/48 and 51/52 are the outputs towards the SCART 1 and SCART 2 sockets respectively.
Pins 62/63 are the constant level outputs for the LINE OUT sockets, fed by the transistors TW11 and TW13; pins 60/61 are the outputs for the loudspeaker power amplifiers (ICS2).
Pins 22/23/25/26/27 are the inputs/outputs of the I2S digital bus used for communications with ICS4 (present only in Dolby Pro Logic appliances).

- **SAA 7710T**

This is present only in appliances equipped with Dolby Pro Logic decoding and also provides the function of a 5-band audio equaliser.
Signal treatment is fully digital and data transfer to and from ICS1 is performed via the bus I2S which is connected to pins 22/23/24/28/29.
A specific software program is responsible for complete management of all functions, including a special spatial sound (Incredible Sound) which offers effects similar to Pro Logic decoding without the need to install rear loudspeakers.

- **TDA 7467D**

ICS5 can be used as an alternative to the Dolby Pro Logic decoder ICS4. This creates special spatial sound effects while using solely the loudspeakers contained in the appliance.
The input signal to be processed is connected to the pins 2/3 and the outputs are connected to pins 1/28. It is fully managed by software.

- **TDA 2616**

This is a double Hi-Fi audio power amplifier in accordance with DIN45500.
ICS2 is always present, whereas ICS6 is used solely in Dolby Pro Logic appliances to amplify the central and rear channels.
The input signals are connected to pins 1/9 and the outputs to pins 4/6.
Pin 2 mutes the amplifiers and is controlled via the transistor TW9.
The transistors TW12 and TW14 activate MUTE during power supply transients.
The right and left channel signals are also added together and sent, via the transistor TW10, to the woofer box amplifier (present in some models only).

- **TDA 7053AT**

This is a double amplifier used to power the headphone socket.
The inputs are connected to pins 4/6 and the outputs to pins 9/16. The reproduced signal is the same as that of the loudspeakers and its volume and balance can be controlled by way of pins 2/8 connected to the output pins 3/4 of microcontroller ICR1.

Woofer amplifier

This is present in some models only and is used to power the woofer loudspeaker box.
The integrated circuit LM358N (ICB1A/B) constitutes a two-stage low-pass filter in cascade and serves to eliminate all frequencies higher than about 300 Hz from the audio signal spectrum.
Power amplification is performed by the integrated circuit TDA2616 (ICB2) connected in a bridge configuration, which directly powers the box loudspeaker.
The circuit made up of the transistor TB2 and the relay RLB1 is used solely in Dolby Pro Logic appliances to adapt the internal loudspeaker connections according to the installation configuration chosen by the user from the OSD menu.
Switching is managed by pin 38 of the microcontroller, which directly drives the base of TB2.

VGA interface

This option (present only on some models) allows the appliance to be used as a computer monitor at the following VGA resolutions only:

pixel	horizontal	vertical
640x480	31.5 kHz	60 Hz
640x350	31.5 kHz	70 Hz
640x400	31.5 kHz	70 Hz

The PC's graphic interface must be set for these resolutions.
The RGB video signals are sent directly to the input pins 30/31/32 of ICC1 while the synchronising signals from pins 13 and 14 of CNM1 are applied to the integrated circuit ICM1 (Quad.2-input exclusive-OR) which provides positive pulses to output pins 3/6 whatever the input polarity. This way the appliance is automatically adapted to any type of PC.
The presence of horizontal and vertical synchronising pulses is checked by means of ICM2, whose output pins 6 and 10 are at level H only if the horizontal and vertical synchronising pulses respectively are present.
Only in this case can pin 2 of CNM3 (VGA ENABLE) go to level H.
The integrated circuit ICM3 is used to check that the frequency of the horizontal synchronising pulses is lower than the maximum value set by PM1 to prevent an incorrect PC resolution setting damaging the television's horizontal deflection stages.
Potentiometer PM1 is factory-set. It requires special equipment for adjustment and its setting must not be altered.

If the value of the horizontal frequency is not correct, pin 10 of ICM3 is kept at level L and consequently the communication line with the microcontroller (VGA ENABLE) goes to about 2.5 V. This information is used to generate a specific error message.
The integrated circuit ICM4 switches between VGA and front RCA audio sources and the transistors TM1/TM2/TM3/TM4 adapt the VGA audio level to that inside the TV set.

Spare parts list
Lista parti di ricambio

Chassis Professional 8000

Rev 1.2

Ref./pos	Part.No. Codice	Description	Descrizione	NOTE
	S000558000	**Front End PCB 8000 cpl.**	**Base Front End 8000 cpl.**	
	S000558750	**Front End PCB 8000 Nicam/Dolby cpl.**	**Base Front End 8000 Nicam/Dolby cpl.**	
	S000558500	**Front End PCB 8000 Nicam cpl.**	**Base Front End 8000 Nicam cpl.**	
	S000558250	**Front End PCB 8000 Dolby cpl.**	**Base Front End 8000 Dolby cpl.**	
!	S047501000	Fusible resistor 1 Ohm	Resistenza sicurezza 1 Ohm	
!	S047502200	Fusible resistor 2,2 Ohm	Resistenza sicurezza 2,2 Ohm	
!	S047504700	Fusible resistor 4,7 Ohm	Resistenza sicurezza 4,7 Ohm	
RW46	S055408020	Wire wound resistor 1 Ohm 7W	Resistenza a filo 1 Ohm 7W	
	S061112050	Diode BAS 32 L	Diodo BAS 32 L	
DC4/DC5	S061517920	Diode BA792/T1	Diodo BA792/T1	
ZC4	S061518100	Diode BAS81	Diodo BAS81	
ZR1	S061703300	Zener diode 3V3	Diodo zener 3V3	
ZC3	S061706800	Zener diode 6V8	Diodo zener 6V8	
ZC5	S061713300	Zener diode 33V	Diodo zener 33V	
	S062608500	Transistor BC 847 B	Transistor BC 847 B	
	S062608600	Transistor BC 857 B	Transistor BC 857 B	
ICS2/ICS6	S063126160	I.C. TDA 2616/N1	I.C. TDA 2616/N1	
ICS1	S063198700	I.C. TDA 9870A (no Nicam)	I.C. TDA 9870A (no Nicam)	
ICS1	S063198750	I.C. TDA9875A V2 (Nicam)	I.C. TDA 9875A V2 (Nicam)	
ICR3	S063286160	I.C. EEPROM M24C16-BN6	I.C. EEPROM M24C16-BN6	
ICR2	S063342700	I.C. EPROM M27C4001-80XF1	I.C. EPROM M27C4001-80XF1	
ICR4	S063344400	I.C. MSM514400D-60	I.C. MSM514400D-60	
ICR1	S063362060	I.C. M30612SFP	I.C. M30612SFP	
ICR6	S063363190	I.C. M51953BFP	I.C. M51953BFP	
ICS4	S063377100	I.C. SAA 7710T/N104/T3 (Pro Logic only)	I.C. SAA 7710T/N104/T3 (Pro Logic solo)	
ICR5	S063552730	I.C. SDA 5273 2P	I.C. SDA 5273 2P	
ICS3	S063570530	I.C. TDA 7053AT/N2,118	I.C. TDA 7053AT/N2,118	
ICC2	S063593200	I.C. TDA 9321H/N1/T3	I.C. TDA 9321H/N1/T3	
ICC1	S063593310	I.C. TDA 9332H/N1/T3 1Y	I.C. TDA 9332H/N1/T3 1Y	
ICC1	S020030000	I.C. TDA 9332H/N2/T3 2Y	I.C. TDA 9332H/N2/T3 2Y	
QC4	S066900150	Quarz 3,58 Mhz	Quarzo 3,58 Mhz	
QC1	S066900250	Quarz 4,43 Mhz	Quarzo 4,43 Mhz	
QR1	S066900400	Quarz 10 Mhz	Quarzo 10 Mhz	
QR2	S066902040	Quarz 20,48 Mhz	Quarzo 20,48 Mhz	
QS1	S066902450	Quarz 24,576 Mhz	Quarzo 24,576 Mhz	

QS2	S066903680	Quarz 36,864 Mhz	Quarz 36,864 Mhz	
FCC5	S067322000	SAW Filter K3953M	Filtro SAW K3953M	
FCC4	S067322500	SAW Filter K9453M	Filtro SAW K9453M	
FCC1	S067330610	Ceramic resonator CSTCS 12.0MT	Risuonatore ceramico CSTCS 12.0MT	
FCC3	S067401050	Ceramic filter TPS 5,5 MWA	Filtro ceramico TPS 5,5 MWA	
LC9	S067408200	Coil P3691NAS-A41	Bobina P3691NAS-A41	
TUC1	S069023200	Tuner UV 1316 AI2	Tuner UV 1316 AI2	
PLS1/PLS2	S071013400	Ext. Speaker connector	Presa x altop. esterno	
SC1/SC2	S071014800	Double SCART connector	Presa SCART doppia	
CNS6	S071015400	Line out RCA connector	Presa RCA line out	
	S087170000	Chassis holder side	Staffa supporto telaio	
	S087178100	Chassis rear connector cover	Sfondo posteriore	
	S087178500	Chassis holder front	Supporto telaio anteriore	
	S000568500	**Power PCB 8000 4:3 25" PH cpl.**	**Modulo Power 8000 4:3 25" PH cpl.**	
	S000568510	**Power PCB 8000 4:3 28" PH cpl.**	**Modulo Power 8000 4:3 28" PH cpl.**	
	S000568520	**Power PCB 8000 4:3 29" PH cpl.**	**Modulo Power 8000 4:3 29" PH cpl.**	
	S000568530	**Power PCB 8000 4:3 34" VI cpl.**	**Modulo Power 8000 4:3 34" VI cpl.**	
	S000568800	**Power PCB 8000 16:9 28" VI cpl.**	**Modulo Power 8000 16:9 28" VI cpl.**	
	S000568810	**Power PCB 8000 16:9 32" VI cpl.**	**Modulo Power 8000 16:9 32" VI cpl.**	
	S000568820	**Power PCB 8000 16:9 28" PH cpl.**	**Modulo Power 8000 16:9 28" PH cpl.**	
!	S044010100	Fusible resistor 1 Ohm NFR25	Resistenza sicurezza 1 Ohm NFR25	
!	S044010470	Fusible resistor 4,7 Ohm NFR25	Resistenza sicurezza 4,7 Ohm NFR25	
!	S048002200	Fusible resistor 2,2 Ohm NFR25H	Resistenza sicurezza 2,2 Ohm NFR25H	
!	S048033000	Fusible resistor 33 Ohm NFR25H	Resistenza sicurezza 33 Ohm NFR25H	
!	S048147000	Fusible resistor 470 Ohm NFR25H	Resistenza sicurezza 470 Ohm NFR25H	
RP1 !	S053051000	Safety resistor 1MOhm VR37	Resistenza 1 MOhm VR37	
RP38 !	S053210700	Safety resistor 4M7Ohm VR68	Resistenza 4M7 Ohm VR68	
RP9	S054000150	Wire wound resistor 0,15 Ohm 3W	Resistenza a filo 0,15 Ohm 3W	
	S054001000	Resistor 1 Ohm 2W	Resistenza 1 Ohm 2W	
	S054004700	Resistor 4,7 Ohm 2W	Resistenza 4,7 Ohm 2W	
RF11	S054115000	Resistor 150 Ohm 2W	Resistenza 150 Ohm 2W	
RP3	S054347000	Resistor 47 KOhm 2W	Resistenza 47 KOhm 2W	
RP16	S055492270	Resistor 27 KOhm 7W	Resistenza 27 KOhm 7W	
NTC1	S056590200	NTC resistor 4,7 Ohm	Resistenza NTC 4,7 Ohm	
PTC1 !	S056591100	PTC resistor 12A	Resistenza PTC 12A	
	S061002100	Diode BAV 21/A52A	Diodo BAV 21/A52A	
DF1	S061111320	Diode 1N 4007	Diodo 1N 4007	
	S061112050	Diode BAS 32L	Diodo BAS 32L	
	S061281050	Diode BAV 203-GS18	Diodo BAV 203-GS18	
	S061301360	Diode BYW 36	Diodo BYW 36	
	S061401370	Diode BYD 37K/T1	Diodo BYD 37K/T1	
	S061503750	Diode BYD37J,115	Diodo BYD37J,115	

DP16/DP24	S061706200	Zener diode 6V2	Diodo zener 6V2	
ZF1/ZL1	S061909350	Zener diode BZT03-C51/A52A	Diodo zener BZT03-C51/A52A	
ZP1	S061703300	Zener diode 3V3	Diodo zener 3V3	
DP20	S061011000	Bridge rectifier B250D	Diodo ponte B250D	
DP1	S061270000	Bridge rectifier B380C3200-2200	Diodo ponte B380C3200-2200	
DP10	S061299080	Diode BYW 80PI-200	Diodo BYW 80PI-200	
DP5/DP8	S061299120	Diode BYT 12PI-1000	Diodo BYT 12PI-1000	
	S061303800	Diode BYV 98-200	Diodo BYV 98-200	
DL10	S061316870	Diode BY 228	Diodo BY 228	
DL5	S061316900	Diode BY 229F-800	Diodo BY 229F-800	
DL4	S061319200	Diode BY 459X-1500	Diodo BY 459X-1500	
DP2	S061401480	Triac BTA 08-700CW	Triac BTA 08-700CW	
TL1	S062520300	Transistor BC 635-16	Transistor BC 635-16	
	S062608500	Transistor BC 847 B	Transistor BC 847 B	
	S062608600	Transistor BC 857 B	Transistor BC 857 B	
TP1	S062756700	Transistor STH 7NA80 FI	Transistor STH 7NA80 FI	
TL2	S062764100	Transistor BUH 1015 HI	Transistor BUH 1015 HI	
TG1	S062815480	Transistor STP 12NB30FP	Transistor STP 12NB30FP	
ICP1	S063164520	I.C. TEA 2262	I.C. TEA 2262	
ICP9	S063249500	I.C. LE 50CZ AP	I.C. LE 50CZ AP	
ICP3 !	S063410300	I.C. K 3023 P	I.C. K 3023 P	
ICP2 !	S063411010	I.C. TCD T 1102 GB	I.C. TCD T 1102 GB	
ICF1	S063183510	I.C. TDA 8351/N6	I.C. TDA 8351/N6	
ICP4	S063209700	I.C. L 78S05/CV	I.C. L 7808CV	
ICP7	S063210500	I.C. L 7808CV	I.C. L 7808CV	
ICP6	S063210520	I.C. L 7812CV	I.C. L 7812CV	
ICP10	S063240000	I.C. VIPER 20A DIP	I.C. VIPER 20A DIP	
FP1/FP4/FP5 !	S070503900	Fuse T2,5A	Fusibile T2,5A	
FP3 !	S070503940	Fuse T4A	Fusibile T4A	
FP7 !	S070504000	Fuse T315 mA	Fusibile T315 mA	
FP2 !	S070506500	Fuse T 3,15A	Fusibile T 3,15A	
CP17	S017120000	Condensator 220 pF 1000V	Condensatore 220 pF 1000V	
CP23	S020222000	Condensator 2K2 pF 4000V	Condensatore 2K2 pF 4000V	
CP73	S040780100	Condensator 10 µF 385V	Condensatore 10 µF 385V	
CP14	S040781500	Condensator 150 µF 385V	Condensatore 150 µF 385 V	
TRL2 !	S065624000	Flyback transformer	Trasformatore EAT	
TRL2 !	S031010010	Flyback transformer (Dynamic focus)	Trasformatore EAT (Dynamic focus)	
TRP2 !	S065701100	Stand-by transformer	Trasformatore Stand-by	
TRP1 !	S065706100	Power supply transformer	Trasformatore di alimentazione	
TRP3 !	S066541750	Mains filter	Filtro rete	
TRL1	S066548000	Line driver transformer	Trasformatore di riga	
LG2	S067070800	E/W Coil	Bobina E/W	
LL6	S030040020	Bridge Coil	Bobina ponte	

LG1	S067081440	Linearity coil	Bobina linearità	
	S067419000	Choke 110 µH	Choke 110 µH	
	S000678510	**RGB PCB cpl. (PHILIPS CRT)**	**Modulo RGB cpl. (cinescopio PHILIPS)**	
	S000678500	**RGB PCB cpl. (VIDEOCOLOR CRT)**	**Modulo RGB cpl. (cinescopio VIDEOC)**	
RV40	S054001000	Resistor 1 Ohm 2W	Resistenza 1 Ohm 2W	
	S061002100	Diode BAV 21/A52A	Diodo BAV 21/A52A	
DV10	S061111320	Diode 1N 4007	Diodo 1N 4007	
DV6	S061112050	Diode BAS 32 L	Diodo BAS 32 L	
DV4/DV8	S061281050	Diode BAV 203-GS18	Diodo BAV 203-GS18	
TV6	S062528230	Transistor BD 230/B	Transistor BD 230/B	
TV5	S062528240	Transistor BD 231/B	Transistor BD 231/B	
TV4	S062607200	Transistor BF 720,115	Transistor BF 720,115	
	S062608500	Transistor BC 847 B	Transistor BC 847 B	
	S062608600	Transistor BC 857 B	Transistor BC 857 B	
TV2/TV3	S062620000	Transistor BSV52,215	Transistor BSV52,215	
ICV1	S063161080	I.C. TDA 6108JF/N1	I.C. TDA 6108JF/N1	
CNV2	S070001200	CRT socket	Zoccolo cinescopio	
	S000530210	**100Hz Features PCB cpl.**	**Modulo Features 100Hz cpl.**	
	S061112050	Diode BAS 32 L	Diodo BAS 32 L	
DY2	S061500400	Diode BBY40/T1	Diodo BBY40/T1	
DY3	S061515500	Diode BZV55C3V6	Diodo BZV55C3V6	
DY1	S061518010	Diode BAS16/T1	Diodo BAS16/T1	
TY7	S062605500	Transistor BF 550/T1	Transistor BF 550/T1	
	S062608500	Transistor BC 847 B	Transistor BC 847 B	
	S062608600	Transistor BC 857 B	Transistor BC 857 B	
ICY6/ICY8	S063209600	I.C. L 78L05ACZ AP	I.C. L 78L05ACZ AP	
ICY4	S063349550	I.C. SAA 4955TJ/V1/T3	I.C. SAA 4955TJ/V1/T3	
	S020020000	I.C. SAA 4956TJ/V1/T3	I.C. SAA 4956TJ/V1/T3	
ICY1	S063349770	I.C. SAA 4977H/V1/T3	I.C. SAA 4977H/V1/T3	
ICY2	S063367400	I.C. M74HCT 04	I.C. M74HCT 04	
ICY9	S063367420	I.C. M74HCT 157	I.C. M74HCT 157	
ICY7	S063549310	I.C. L4931-CDT33	I.C. L4931-CDT33	
ICY3	S063574400	I.C. 74 HCT4046AD/T3	I.C. 74 HCT4046AD/T3	
LY4	S067407900	Coil A638AN-0164Z	Bobina A638AN-0164Z	
	S000768000	**VGA PCB cpl.**	**Modulo VGA cpl.**	
	S062608500	Transistor BC 847 B	Transistor BC 847 B	
	S062608600	Transistor BC 857 B	Transistor BC 857 B	
ICM4	S063574000	I.C. 74 HC 4053D,653	I.C. 74 HC 4053D,653	
ICM1	S063574080	I.C. 74 HCT86 D	I.C. 74 HCT86 D	
ICM2/ICM3	S063574450	I.C. 74 HCT4538D	I.C. 74 HCT4538D	

CNM7	S071020100	RCA connector withe	Presa RCA bianca	
CNM6	S071020110	RCA connector red	Presa RCA rossa	
CNM1	S071040150	VGA connector	Connettore VGA	
	S000868100	**Audio Booster PCB cpl.**	**Modulo Audio Booster cpl.**	
	S055408020	Wire wound resistor 1 Ohm 7W	Resistenza a filo 1 Ohm 7W	
	S063001800	I.C. LM 358 N	I.C. LM 358 N	
	S063126160	I.C. TDA 2616/N1	I.C. TDA 2616/N1	
	S068070900	Relais SVR-12	Relais SVR-12	